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OF THE

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BOARD OF HEALTH

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FOR THE

YEAR ENDING OCTOBER 31, 1896

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OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS OHIO, January, 1897.

To His Excellency, ASA S. BUSHNELL, Governor of Ohio:

SIR: In accordance with section 8 of an "Act to create and establish a State Board of Health," the accompanying report is herewith submitted for the year ended October 31, 1896.

Respectfully,
C. O. PROBST, M. D., Secretary.

MEMBERS OF THE STATE BOARD OF HEALTH.

*S. P. WISE, M. D,, Millersburg	December,	1896.
WM. T. MILLER, M. D., President, Cleveland	"	1897.
THOS. C. HOOVER, M. D., Vice-President, Columbus	"	1898.
R. D. KAHLE. M. D., Lima	"	1899.
JOSIAH HARTZELL, Ph. D., Canton	"	1900.
E. T. NELSON, Ph. D., M. D., Delaware	"	1901.
B. STANTON, M. D., Cincinnati	"	1902.
C. O. PROBST, M. D., Secretary		

*Dr. J. C. Crossland of Zanesville, appointed to succeed Dr. S. P. Wise. Term expires 1903.

General Report.

This is the eleventh annual report of the State Board of Health, and is for the year ended October 31, 1896. The reports of deaths and contagious diseases in cities and villages, and the annual reports of local boards of health, are for the calendar year.

PERSONNEL OF THE BOARD.

The personnel of the Board remains as it was given in the last report. The term of office of Dr. Byron Stanton having expired by limitation, he was renominated by Governor McKinley and confirmed by the Senate for the term ending December, 1902.

MEETINGS OF THE BOARD.

Four meetings of the Board were held during the year, two in Columbus, one in Cincinnati and one in Cleveland. The meeting was held in Cleveland in order to consider the protest of the board of park commissioners against permitting storm overflows from the proposed Doan street sewer to discharge into Doan brook, a small stream flowing through a part of the park system of Cleveland. The Board after viewing the grounds and hearing arguments on both sides of the question, voted to disapprove of the proposed overflow into Doan brook. The January meeting, held in Columbus, was a joint meeting of the State and Local Boards of Health, the sixth meeting of the kind. The attendance was larger than at any previous meeting, not less than three hundred delegates being present. The proceedings were published in the tenth annual report of the State Board of Health.

HEALTH OF THE STATE.

No satisfactory report can be made upon the comparative healthfulness of the state during the year, as mortality reports are received from cities and a few villages only. As has been pointed out before, the state's system of collecting vital statistics is so imperfect as to make [illegible] of no practical value. Reports received indicate a greater [illegible] usual of diphtheria and typhoid fever, and less [illegible]nber of cases of diarrhoeal diseases, especially of

SMALL-POX IN OHIO.

The places infected, and number of cases of small-pox which occurred during the year, were as follows:

Bridgeport	43 cases.
Martin's Ferry	68 "
Pease, Pultney and Colerain townships, Belmont county	13 "
Miltonsburg, Monroe county, and vicinity	13 "
East Liverpool	2 "
Lisbon	2 "
Zanesville	5 "
Dayton	61 "
Lima	10 "
Lockland	1 case.
Total	218 cases.

During the year ended October 31, 1895, small-pox was reported in sixteen places, with 206 cases of the disease. At the close of that year the disease had been suppressed except in Bridgeport, Martin's Ferry and their immediate vicinity. There had been up to that time sixteen cases of small-pox in Bridgeport, six cases in Martin's Ferry and two in the adjoining township of Pease. It should be noted that these two cities, while under separate government, are practically undivided.

The disease was abating in both places when, about the first of December, fresh outbreaks occurred in both Bridgeport and Martin's Ferry. In Bridgeport this was traceable to exposure to a man named Powell who died from what was pronounced, on post mortem examination, *purpura hemorrhaghica*, but which was in fact malignant small-pox of the purpuric variety. In Martin's Ferry there were also mistakes in diagnosis which caused an increased development of the disease.

The secretary of the State Board of Health visited these places early in December, and urged the local authorities to enforce more stringent measures for suppressing the disease. In Martin's Ferry there was difficulty in getting the authorities to realize the necessity for a more liberal expenditure of money for quarantine and other services. An effort to secure the harmonious co-operation of the health authorities of Bridgeport, Martin's Ferry and Wheeling, W. Va., which is connected by bridges with the former places, and where small-pox was also prevailing, was but partly successful. Finally, and after another visit by the secretary, it being found that small-pox was steadily increasing, the State Board of Health adopted the following regulations for the suppression of small-pox, and they were advertised and put in force December 16, 1895:

REGULATIONS OF THE OHIO STATE BOARD OF HEALTH FOR THE SUPPRESSION OF SMALL-POX IN BRIDGEPORT, MARTIN'S FERRY AND VICINITY.

1. The board of health of Martin's Ferry, Bridgeport and vicinity where small-pox is prevailing, shall at once enforce measures to secure the vaccination of the inhabitants of their respective communities.

2. All houses containing small-pox shall be securely guarded day and night, to prevent entrance to or exit from such houses.

3. Physicians shall be required to report at once to the health officer all cases of disease to which they are called which in any manner simulate small-pox.

4. It shall be the duty of the board of health to cause such cases to be examined at once by one or more reputable physicians; and "suspects" shall be strictly quarantined until it is positively known that they are not suffering from small-pox.

5. No person shall be employed as guard or nurse for small-pox patients unless he or she has been recently vaccinated.

6. All employees of railroads, steamboats or other transportation companies, passing through or touching at Bridgeport or Martin's Ferry shall present evidence of recent successful vaccination.

7. No railroad or other transportation company shall receive for shipment household goods of any character from Bridgeport or Martin's Ferry.

8. The secretary of the Ohio State Board of Health is hereby authorized to withhold, suspend or modify these regulations, or to make and enforce such additional orders or regulations as the exigencies of the situation may demand.

9. Any person violating these regulations shall be punished as provided in sections 2 and 5 of an act passed March 14, 1893.

Attest. C. O. PROBST,
Secretary.

Adopted December 16, 1895.

At this time there were about fifty cases of small-pox in Bridgeport, Martin's Ferry and immediate vicinity. The disease was carried to East Liverpool, where two cases occurred in one family, to Pease, Pultney and Colerain townships, adjoining Bridgeport and Martin's Ferry, where there were thirteen cases, to the vicinity of Miltonsburg and Woodsfield, Monroe county, thirteen cases occurring there, to Lisbon, Columbiana county, where there were two cases, and finally, late in the epidemic, to Zanesville, where there were five cases of the disease.

There was great public alarm in this part of the state, and railroad trains were being stopped and many needless restrictions placed on freight and passenger traffic. It was deemed advisable to call a conference of representatives of boards of health of southeastern Ohio to agree upon proper quarantine regulations. A meeting was accordingly held in Bellaire on January 8, 1896, one member and the secretary representing the State Board of Health. The meeting was productive of great good. Accurate knowledge was obtained of the exact situation in infected districts, and such quarantine restrictions as were born of needless fear were voluntarily removed.

Enforcement of the rules adopted by the State Board of Health

The State Board of Health has had this matter of bacteriological diagnosis of diphtheria under consideration for some time, and hopes, by the aid of the boards of health in our large cities, and by a central laboratory at Columbus, to be able to offer the advantages of bacterial examinations to physicians and boards of health throughout the state.

MEMBRANOUS CROUP.

Membranous croup, until within a comparatively recent time, was regarded as a simple inflammatory disease of the upper air passages, and *non contagious*. Following the discovery of the bacterial origin of diphtheria and the identification of the parasite, it was found, upon examination, that many cases of membranous croup were undoubtedly due to this same cause. It is now established beyond controversy that the majority of cases of so called membranous croup are simply diphtheria of the air passages, and that such cases are *contagious*. Furthermore, it is agreed that membranous croup of a different origin, and of the non-contagious variety, which may, apparently occur, cannot be distinguished, except by bacterial examination, from contagious, diphtheritic croup. The Board, therefore, at its October meeting, amended its rules regulating contagious diseases so as to include membranous croup among the quarantinable diseases, to be treated, as regards prevention, the same as diphtheria. Notice of this amendment was sent to local health authorities throughout the state, and public notice given of this requirement through the medium of the press.

Twenty thousand copies of the following pamphlet on "The Prevention of Diphtheria and Membranous Croup," were printed, and the majority of these have been properly distributed:

DIPHTHERIA AND MEMBRANOUS CROUP.

RECOMMENDATIONS FOR THEIR PREVENTION AND RESTRICTION.

Issued by the State Board of Health of Ohio.

Diphtheria is a dangerous contagious disease, very fatal to children under five years of age, and prevailing to a greater or less extent in this state at all times, and adults are not infrequently affected, but usually have it in mild form.

The disease is caused by a germ, which lodges in the throat or upper air passages and grows, forming a whitish membrane and a poison, which is absorbed and produces the symptoms of the disease.

Membranous croup, in nearly all, if not all cases, is *diphtheria*, the membrane being limited to the upper part of the windpipe. *Membranous or diphtheritic croup is contagious* like other forms of diphtheria, and the same precautions are required for its prevention.

Diphtheria and membranous croup (and in speaking of them hereafter both will be included under *diphtheria*) are spread by means of this germ. The secretions from the nose, throat and mouth of a person having the disease contain this germ in abundance, and the air of the sick-room is also usually infected with it. Everything in the sick-room should be regarded as infect-

This germ may live outside of the body, in clothing, rags, on toys, etc., for a long time, possibly years, and may thus be carried any distance. It may also be carried by dogs or cats admitted to the sick-room.

It may be present in the secretions from the throat or nose for some days (possibly two or three weeks) after the patient appears to be entirely well.

Filth does not cause diphtheria, but persons living amid filthy surroundings, in dark, damp, badly ventilated houses, are more apt to contract the disease, and usually have it in a more malignant form than those better situated. The germ is also perpetuated in filthy places.

THE PREVENTION OF DIPHTHERIA.

Attention should first be given to the sanitary condition of the home. Cleanliness, with sunlight and fresh air in abundance may be had in the humblest household; and, more than anything else, are the means of securing good health. Filth of all kinds about the house and yard should be removed rather than to attempt to disinfect it.

But healthy children, in healthy homes, may contract diphtheria, and when the disease appears in a community parents should take every precaution to keep their children away from possible sources of contagion, and should themselves avoid going near the disease. Adults, as stated, usually have diphtheria in mild form, and may have the disease without knowing or being aware of it. During the prevalence of diphtheria, adults having a sore throat should avoid children until a physician has pronounced their disease to be not diphtheria.

When diphtheria makes its appearance in a community the safety of the public depends upon the promptness and strictness with which the local health authority enforces quarantine measures. By quarantine is meant the isolation of persons sick with the disease and those intimately associated with them. Parents should therefore give the board of health and health officer all possible assistance and support in enforcing proper preventive measures.

The laws of Ohio require the attending physician to report every case of diphtheria within twelve hours after becoming aware of the nature of the disease.

The health officer is required to give public notice of the disease by a placard, and no one is permitted to enter or leave the house (excepting the physician and necessary attendants) without the written permission of the health officer or board of health.

When the patient has recovered, or after death, it is the health officer's duty to see that disinfection is properly carried out.

If these measures were promptly and strictly enforced in all cases, diphtheria, to a very large extent, would be prevented, and the lives of hundreds of children, which are needlessly sacrificed each year in this State, would be saved.

SPECIAL MANAGEMENT OF CASES.

When diphtheria is present in a community, a child with sore throat and fever should be regarded with suspicion. If at school, such a child should be sent home at once, with a note to the parents requesting them to have the child examined by a physician. These suspected cases should be *isolated* as soon as possible, and kept apart from other children until a physician pronounces the disease *not* diphtheria.

As soon as a child is known to have diphtheria it is advisable to take it to a room prepared by removing everything not needed for the patient or his attendants. It should be kept in mind that everything in the room must be finally disinfected, so the less in it the better. The room should of course be prepared before the child is taken into it.

from the use of the diphtheria antitoxin in European hospitals have been nearly, if not quite, as favorable, so that, as was said by Virchow early in the discussion on the use of this new remedy, the "brute force of figures" leaves no escape from the conclusion that in antitoxin we have a remedy which, if properly used, will lower the death rate from diphtheria to a very considerable extent.

A departure from custom on the part of boards of health may be noted in connection with the use of antitoxin. Prior to its introduction boards of health were concerned only in the *prevention* of disease, but several state boards of health and numerous municipal boards have undertaken to supply antitoxin free of charge to physicians for the treatment of those who are unable to pay for it. This is undoubtedly a wise measure where the health authorities are able to assure themselves of the strength and purity of the remedy which they supply; and to this end many of the boards of health have fitted up laboratories for the production of antitoxin.

TYPHOID FEVER.

During the later summer months there was an unusual prevalence of typhoid fever, affecting to a much greater proportional extent the villages and rural districts where wells are in use.

The fact seems to be well worked out that typhoid fever in the great majority of cases is communicated through the drinking water, but while this has become, in a great measure, common knowledge, the utmost carelessness and indifference are still shown by many people in regard to the use of polluted water.

As an example of this may be cited the little village of Hannibal on the Ohio River in Monroe county, where an outbreak of typhoid fever occurred which was clearly traced to one well. The village had been free from typhoid fever for years when a man, taken sick with the disease away from home, was brought there and taken to his father's. The well at this house is near the kitchen door and the privy is near the well. The stools of the patient were thrown into this privy and the well became infected. This well was used by a large number of people, and suddenly a number of them were taken sick with typhoid fever, about forty cases developing within ten days. Nearly eighty cases occurred, most of them being traced to this well. In spite of this, public sentiment was against closing the well, and it was done by order of the State Board of Health, but under protest. A chemical examination showed that the well was being polluted by leachings from the adjacent privy vault. A report of this was made to the local authorities, but the well, after being closed for a time, was reopened by one of the citizens, and again went into general use.

The serum diagnosis of typhoid fever is attracting the attention of the health officials and physicians all over the world. This disease is often very difficult of recognition. It has been shown to be due to a minute plant organism, and this organism behaves peculiarly when placed in the blood serum, or in a solution in which has been dissolved a drop of dried blood, taken from a typhoid fever patient. The typhoid germ or organism when placed in a drop of water, or in the blood serum of a patient suffering from some disease other than typhoid fever, may be seen, under the microscope, to move about actively, the germs remaining separated. But when placed in the blood serum of a typhoid fever patient, or in a solution containing a drop of blood taken from such a patient, the germs soon group themselves in little clusters and become motionless. It has been found possible to diagnose typhoid fever with great certainty by this method, and a number of boards of health having laboratory facilities have added much to their usefulness by taking up this new work.

It is claimed that Asiatic cholera may be recognized in the same manner, and it is probable that this new method of diagnosis may yet be applied to other bacterial diseases.

The time has now come when laboratories for chemical and bacteriological work must form part of the equipment of a progressive State Board of Health. Much of the work for the state at large could be done at a central laboratory under the direct control of the State Board of Health, but for many purposes laboratory assistance should be nearer at hand, and each of our large cities should provide a laboratory for its board of health. This will undoubtedly come as the people are fast reaching the conviction that money spent in the prevention of disease brings larger returns than any other form of municipal investment.

WATER SUPPLIES AND SEWERAGE.

The year has been an active one as regards the introduction of water supplies and sewerage, in spite of depressed financial conditions, which have retarded public improvements, and made difficult the placing of bonds authorized for such work.

Plans for new or additional water supplies for the following places have been submitted to the Board for approval: Ashtabula, Bucyrus, Rockford, Bluffton, Ripley, Mt. Vernon, Greenwich, Xenia, Oxford, Tippecanoe City, Delphos, St. Marys, Sidney, Hiram, Norwalk, Mineral Point, Lynchburg, Loveland, Cambridge, Canal Dover, Millersburg, Elyria, Delaware, Medina, Marion and Shelby. Lorain applied to the Board for a scheme of filtration of the public water supply.

Plans for sewerage, or for change of or additions to existing systems of sewerage, for the following places were submitted to the Board for approval: Martin's Ferry, Dayton, Chillicothe, Sidney, Toledo, Cleveland Willoughby.

To provide a guide for boards of health in framing rules and regulations governing plumbing, and to insure, so far as possible, uniform rules throughout the state, the State Board of Health adopted the following rules and regulations for the construction of plumbing, and recommended them to the local boards of health for adoption; a number of the large cities have adopted them:

RULES AND REGULATIONS FOR THE CONSTRUCTION OF PLUMBING.

RECOMMENDED BY THE STATE BOARD OF HEALTH, JULY, 1896.

SECTION 1. No person or persons shall carry on the business of plumbing or engage in conducting plumbing or house drainage until he or they shall obtain a license from the board of health of the city or village in which he or they have an established place of business.

SEC. 2. No person or persons shall engage in the business of sewer-tapping until he or they shall obtain a license from the board of health of the city or village in which he or they propose to conduct said business. Such license shall be issued only after said person or persons shall have satisfied said board as to his or their proper qualification; and any person or persons holding such permit shall forfeit the same by failure to comply with any of the rules or regulations governing sewer-tapping adopted by said board.

SEC. 3. Every person or persons making an application for a license to carry on the business of plumbing or sewer-tapping shall accompany his or their application with a bond, signed by two or more sureties, to be approved by the said board of health, in the sum of five hundred dollars, conditioned that he or they will indemnify and save harmless said city or village from all accident or damage caused by negligence either in the execution or protection of his work, or for any unfaithfulness or inadequate work done under and by virtue of his license: and that said license as such will also conform to all the conditions and requirements of the city or village for his or their government.

SEC. 4. The inspector who is duly appointed as provided by these rules and and regulations or existing laws and ordinances, shall have authority and power, whenever in his opinion any plumber or sewer-tapper, in doing any plumbing or house drainage or sewer-tapping, violates any provision, rule or regulation or the ordinances of said city or village, to suspend said license; and it shall be the duty of the officer making such order of suspension to report the same to the board of health; and if the said board shall be of the opinion that the charges are well founded, they shall revoke said license subject to and as provided by an act entitled "An act to promote the public health and regulate the sanitary construction of house drainage and plumbing," passed April 21, 1896.

SEC. 5. It shall be the duty of the owner, architect or other duly authorized person to furnish a plan that shall show the entire systems of plumbing and sewerage of a building, which shall be approved by the inspector before any portion of the work shall be executed; and every plumber or sewer-tapper, before doing any of the work in a building, shall, except in case of repair, receive a certificate from the inspector that the plans and specifications prepared by the architect or owner for such work have been approved by the inspector, and are in accordance with these rules and regulations. Plumbing work which [illegible] add addit fixtures or cause the entire renewing or remodelling changing of the system of using such pipes, a

SEC. 6. All materials must be of good quality and free from any defect. The work must be executed in a thorough and workmanlike manner. The arrangement of soil and waste pipes must be as direct as possible.

SEC. 7. The drain, soil and waste pipes and the traps must, if practicable, be exposed to view for ready inspection at all times and for convenience in repairing. When necessarily placed within partition or in recesses of walls, soil and waste pipes should be covered with wood work so fastened with screws as to be readily removed; in no case shall they be absolutely inaccessible. It is recommended to place soil and other vertical pipes in a special shaft between or adjacent to the water closets and bath-room, and serving as a ventilating shaft for them. This shaft should be at least two and one-half feet square. It should extend from the cellar through the roof and should be covered by a "louvered skylight." It should be accessible at every story, and should have a very open but strong grating at each floor to stand upon. Shafts not less than three square feet in area are required in tenement houses to ventilate interior water closets.

SEC. 8. Every building shall be separately connected with the public sewer when such sewer is provided and abuts said building on street, avenue or alley, the same to be accessible to said building. The said line of sewer may be laid by a licensed sewer-tapper to a point not within three feet of outside foundation of building; all connections must be made by a properly licensed plumber.

SEC. 9. Drains shall have a fall not less than one-eighth of an inch per foot, and should be supplied with a suitable trap, placed with an accessible cleanout, either outside or inside the foundation wall of the building, except where the separate system of sewerage, with proper arrangements for daily flushing, is in use. Each house drain, when trapped, shall be provided with a fresh air inlet, not less than four inches in diameter, on the house side of the trap, extending to the external air in such locality as will not be detrimental to the inmates of the house, in the judgment of the inspector, or it may be carried up above the roof on inside of house.

SEC. 10. Rain-water leaders, when connected with sewer or drain pipes, shall be suitably trapped and must not open near a window or light shaft; and no rain-water leader can be used for any other purpose and must be of iron soil pipe when inside a building.

SEC. 11. Where there is no city sewer on public thoroughfare which the building is abutting to, a privy vault may be built by special permit, as follows: It must be lined with hard brick walls not less than nine inches in thickness, laid in cement mortar and proved to be water tight and of such size as may be prescribed by the board of health. Privy vaults shall not be located within two feet of party lines or within twenty feet of a building when practicable.

SEC. 12. No connection from any cess-pool or privy vault shall be made to any sewer, nor shall any water closet or house drainage empty into a cess-pool or privy vault where a sewer is accessible. If at any time a city or village shall construct a sewer which is accessible to abutting property, all systems of drainage shall be connected to same within a period not exceeding ninety days; and all special permits for vaults, cess-pools or any other system of drainage shall become null and void, and the building shall be subject to these rules and regulations to their full extent and meaning.

SEC. 13. The house drain must be of extra heavy cast-iron pipe when within a building under ground. It must be laid in a straight line, if possible; and all changes in direction must be made with curved pipes, and all connections with Y branch pipes, and one-eighth bends. When water closets charge into it, the house drain shall be not more than five inches nor less than four inches in diameter except by special permission of the board of health.

SEC. 14. All house drains must be inspected and approved by the inspector; and when put in and covered without due notice to him, must be uncovered for inspection at his direction.

SEC. 15. Sub-soil drains shall be constructed as follows: By a system of French drains or field tile, and conveyed to a catch basin, same to be flagged or arched over. The outlet pipe shall be properly trapped and connected with the house drain, and shall also be provided with a back pressure valve of required size, the same to be not less than four inches.

SEC. 16. Slop sinks may be used in floor of cellars, provided they are placed above a trap not less than four inches in diameter, and with not less than three inches of seal, and a tight connection made thereto; also said trap must be so placed as to be frequently supplied with clean water to prevent same from drying out, and to be so located that it will not become choked with slack coal or any other substances which are likely to collect in a cellar.

SEC. 17. Every soil and waste pipe must be of cast iron, lead, copper or brass, and where it receives the discharge of fixtures upon any floor for water closets or waste water, must extend at least two feet above the highest part of the roof or coping, of undiminished size. It must not open near a window or an air shaft which ventilates living rooms, and is to be increased at a point where it passes through the roof to one size larger; in no case to be of less than four inches for above roof, and to have a copper or wire basket on open end, securely fastened to pipe. Where pipe passes through roof, roof shall be made water tight. There shall be no traps on vertical soil or waste pipe lines or other lines, except main line as it enters the building—house trap.

SEC. 18. The minimum diameter of soil pipe for water closets shall be four inches. A vertical waste pipe, into which a line of kitchen sinks discharge, shall be at least two inches in diameter, with one inch and a half branches to fixtures.

SEC. 19. All cast iron pipes must be sound, free from holes or other defects, and of uniform thickness of not less than one-eighth of an inch for a diameter of two, three or four inches, or five thirty-seconds of an inch for a diameter of five or six inches; and in case the building is over sixty-five feet in height above the curb, the use of what is known as "extra heavy" pipe and corresponding fittings shall be required.

SEC. 20. Traps must be protected from siphonage or air pressure; and the waste pipe leading from them ventilated by a special air pipe in no case less than two inches in diameter for water closet traps, which must be connected beneath the floor, and one and a half inches for other traps; and ventilation pipes less than four inches in diameter must not be carried up outside the building. In buildings more than four stories in height the vertical bent pipes for water closets must be at least three inches in diameter, with a two-inch branch for each trap, and for traps of other fixtures, not less than two inches in diameter, with branches one and a half inches in diameter, unless the trap is smaller, in which case the diameter of branch vent pipes must be at least equal to the diameter of the trap. In all cases vertical bent pipes must be of cast iron, brass or lead; and only one trap may be vented off one and one-fourth inch pipe. These pipes must either extend two feet above the highest part of the roof or coping, the extension to be not less than four inches in diameter and capped with copper or brass wire basket, or they may be branched into a soil pipe not less than four feet above the highest fixture. They may be combined by branching together those which serve several traps. These air pipes must always have a continuous slope to avoid collecting water by condensation. No trap vent pipe shall be used as a waste [illegible] or lead waste or vent pipes may be used. Changes [illegible] made with curved pipes, and connections with

Y branches or sanitary T's. No brick, sheet metal, earthen ware or chimney flue shall be used as a sewer ventilator, nor to ventilate any trap, drain, soil or waste pipe.

SEC. 21. All cast iron soil, waste or vent pipes, before they are connected, must be thoroughly coated inside and outside with coal-tar pitch, applied hot, or some equivalent substance.

SEC. 22. All drain and anti-syphon pipes of cast iron shall be sound, free from holes, and of a uniform thickness, and shall conform to the following relative weight:

STANDARD.	EXTRA HEAVY.
2 pipe, 4 lbs. per foot.	2 pipe, 5½ lbs. per foot.
3 " 6 " "	3 " 9½ " "
4 " 9 " "	4 " 13 " "
5 " 12 " "	5 " 17 " "
6 " 15 " "	6 " 20 " "
8 " 25 " "	8 " 33½ " "
10 " 35 " "	10 " 45 " "
12 " 45 " "	12 " 54 " "

All fittings for soil, waste or vent pipes must be of cast iron, of corresponding weights and conditions as above mentioned for soil pipes. Where lead pipe is used to connect fixtures with vertical soil or waste pipes, or connect traps with vertical vent pipes, it must not be lighter than the grade called "extra light."

SEC. 23. All connections of lead with iron or brass on sewer side of traps must be made with brass ferrule or nipple of the same size as the lead of the pipe, put in the hub of the branch of the iron pipe and calked in with lead. The lead must be attached to the ferrule or nipple by a wiped joint. All connections of lead pipe must be wiped joints. All joints in iron drain pipes, soil pipes, and waste pipes must be calked with oakum and lead.

SEC. 24. Every water closet, urinal, sink, basin, bath, and every tub or set of tubs, must be separately and effectively trapped. Traps must be placed as near the fixtures as practicable, and in no case shall a trap be more than two feet from the fixtures, except for outside hopper closets. In no case shall the waste from a bath tub or other fixtures be connected with the water closet trap. Overflow pipes from fixtures must in each case be connected on the inlet side of the trap.

SEC. 25. All soil, waste and vent pipes must be tested by the plumber in charge, with a water test, as directed by the inspector and in the presence of the inspector, due notice having been given, stating place and time when ready for such inspection, all openings having been closed by the plumber or person in charge of the work. Pipe joints, fittings, or fixtures thus shown to be defective or wrongly placed, must be replaced within three days and again tested by the inspector. None of the said pipes shall be covered from sight till they have been shown to stand the test prescribed to the satisfaction of the inspector. After the plumbing work of a building has been tested as directed, no alteration will be permitted, except upon written application of the owner or plumber in charge of the work. The said inspector in all cases shall respond promptly. Permits must be taken out before work will be inspected. Notice must be sent to the said inspector when work is sufficiently advanced for inspection. No inspection will be made on legal holidays.

SEC. 26. Every safe under a wash basin, bath, urinal, water closet, or other fixtures, must be drained by a special pipe not directly connected with any soil or waste pipe, drain, or sewer, but discharged into an open sink or upon the cellar floor or outside of the house. The waste pipe from a refrigerator shall not be directly connected with the soil or waste pipe, or with the drain or sewer,

or discharged into the soil; it should be discharged into an open sink. Such waste pipes should be so arranged as to admit of frequent flushing and should be as short as possible and disconnected from refrigerator. The sediment pipe from kitchen boilers must be connected on the inlet side of the sink trap, if connected to waste pipe. Waste tubes from stop cocks shall not be connected to any soil or waste pipe. No steam exhaust or blow off pipe from a steam boiler will be allowed to connect with any soil or waste pipe, or directly with any house drain. They should discharge into a tank or condenser, the waste from which, if to be discharged into a sewer through the house drain, must be trapped and be connected on the sewer side of the running trap.

SEC. 27. Pan water closets shall not be used; and all water closets within a building shall be supplied with water from special tanks or cisterns which shall hold not less than six gallons of water when up to the level of the overflow pipe for each closet supplied, excepting automatic tanks, which shall hold not less than five gallons of water for each closet supplied. The water in said tanks shall not be used for any other purposes. The flushing pipes of all tanks shall not be less than one and one-quarter of an inch in diameter inside. A group of closets may be supplied from one tank, but water closets on different floors shall not be flushed from one tank.

SEC. 28. No water closet except those placed in a yard or open court, shall be supplied directly from the city supply pipes. When so placed it shall be so arranged as to be conveniently and adequately flushed, and their water supply pipes and traps shall be protected from freezing. The waste water from the hopper cock or valve shall be conveyed to the drain through a three-eighth inch brass or lead pipe properly connected. The enclosure where such water close is located shall be ventilated by slatted openings or vent through roof of adequate size.

SEC. 29. Water closets must not be located in the sleeping apartments of any building, or in any room or apartment which has not a direct communication with the external air either by a window or an air shaft, having an area to the open air of at least four square feet, without obtaining a special permit.

SEC. 30. All water closets within a building using lead connections shall have a cast-brass flange not less then three-sixteenths of an inch in thickness, fitted with a pure rubber gasket of sufficient thickness to insure a tight joint, fastened to the closet and secured to the floor.

SEC. 31. Where latrines are used, they shall be of iron, properly supplied with water, and located in yard at least twenty feet from building, when practicable.

SEC. 32. The owner or other party having an interest in any building, staging, or other structure, or anything attached to or connected with a building or structure, which shall be unsafe so as to endanger life, shall immediately, upon notice received from the inspector, cause the same to be made safe and secure or taken down; and where the public safety requires immediate action, the inspector may enter upon the premises with such assistance as may be necessary, and cause the said structure to be secured or taken down without delay, at the expense of such owner or party interested.

SEC. 33. Whenever any person, firm, corporation, exposition commission, or the officers of the said city or village shall wish to erect a public building or buildings for exhibitions, shows or other purposes, and desire to use in the same plans any materials which do not conform to [illegible] act, the same may be authorized by the board of [illegible] vided the plans and specifications for the said inspector.

SEC. 34. All the officers appointed under this act, (an act to promote the public health and regulate the sanitary construction of house drainage and plumbing, passed April 21, 1896), shall, so far as may be necessary for the performance of their respective duties, have the right to enter any building or premises in said city or village.

AN ACT

TO PROMOTE THE PUBLIC HEALTH AND REGULATE THE SANITARY CONSTRUCTION OF HOUSE DRAINAGE AND PLUMBING.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio.* That any person, firm or corporation now, or that may hereafter be engaged in, or working at the business in this state either as master or employing plumber, or as journeyman plumber shall first secure a license therefor, in accordance with the provisions of this act.

SEC. 2. Any person desiring to engage in, or work at, the business of plumbing, either as a master or employing plumber, or as a journeyman plumber, shall apply to the president of the board of health or other officer having jurisdiction in the locality where he intends to engage in, or work at, such business, and shall at such time and place as may be designated by the board of exmainers hereinafter provided for, to whom such application shall be referred, be examined as to his qualifications for such business. In case of a firm or corporation, the examination and licensing of any one member of such firm, or the manager of such corporation, shall satisfy the requirements of this act.

SEC. 3. There shall be in every city and each town of five thousand (5,000) inhabitants, or more, and in each town having a system of water supply or sewerage, a board of examiners consisting of the president of the board of health; and the inspector of buildings of said city or town if any there be, and three (3) members who shall be practical plumbers; (two shall be master plumbers, one shall be a journeyman plumber). The president of the board of health and the inspector of buildings shall be members *ex-officio* of said board and serve without compensation; provided, that in localities where the required number of plumbers cannot be secured, such vacancies may be filled by the appointment of reputable physicians. Said members shall be appointed by the board of health, or if there be no board of health, then by the health officer of said city or town, within three (3) months from and after the passage of this act, for the term of one (1) year, said appointment to date from the first day of August, A. D., 1896, and thereafter annually; and said appointed member of such board shall serve without compensation; provided, that if in any city or town there is no inspector of buildings, said board of health shall appoint a fourth member of said board of examiners, who shall be a practical plumber, and whose term of office shall be the same as heretofore provided for said three (3) members.

SEC. 4. Said board of examiners shall, within thirty (30) days after the appointment of said members, meet and organize by the selection of a chairman, and then shall designate the time and place for the examination of all applicants desiring to engage in or at the business of plumbing within their jurisdiction. Said board shall examine said applicants as to their practical knowledge of plumbing, house drainage and plumbing ventilation, and if satisfied of the competency of the applicant, shall so verify to the board of health. Such board shall thereupon issue a license to such applicant, authorizing him to engage in, or at, the business of plumbing, either as a master or employing plumber, or as a journeyman plumber. The fee for the license for a master or employing plumber, shall be five ($5) dollars; for a journeyman plumber shall be one ($1) dollar. Said license shall be valid and have

force throughout the state, and shall be renewed annually upon payment of a fee of fifty cents. In case of removal beyond the jurisdiction of the board issuing the original license, it may be renewed by any board having like authority.

SEC. 5. The board of health of each city or town mentioned in section three (3) of this act, shall within three (3) months from and after the passage of this act, appoint one or more inspectors of plumbing and such appointment shall be subject to the approval of the council of such city or town (if such appointment has not already been made), who shall be practical plumbers, and shall hold office until removed by such board of health for cause, which must be shown. The compensation of such inspectors shall be determined by the said board of health, and be paid from the treasury of their respective cities or towns. Said inspector so appointed shall inspect all plumbing work for which permits are hereafter granted, within their respective jurisdiction, in process of construction, alteration or repair, and shall report to said board of health all violations of any law, ordinance or by law relating to plumbing work, and also perform such other appropriate duties as may be required by said board.

SEC. 6. The board of health of each city and town of five thousand (5,000) inhabitants or more in this state, and every town having a system of water supply or sewerage, shall within six (6) months from the passage of this act prescribe rules and regulations for the construction, alteration and inspection of plumbing and sewerage placed in, or in connection with any buildings in such city or town; which shall be approved by ordinance by the council, of such city or town and the board of health shall further provide that no plumbing work shall be done, except in the case of repairs or leaks, without a permit being first issued therefor, upon such terms and conditions as such board of health of said city or town shall prescribe.

SEC. 7. Any person violating any provision of this act shall be deemed guilty of a misdemeanor, and shall be subject to a fine not exceeding fifty ($50) dollars, nor less than five ($5) dollars for each and every violation thereof. The license of any master or journeyman plumber may at any time be revoked for incompetency, dereliction of duty or other sufficient causes after a full and fair hearing by a majority of the examining board, but an appeal may be taken from said examining board to the State Board of Health, and license may be revoked by the examining board provided for in section three (3) of this act.

SEC. 8. All money derived from the examination of applicants shall go to the board of health at the place where the applicant was examined.

SEC. 9. All acts and parts of acts inconsistent herewith are hereby repealed.

SEC. 10. This act shall take effect from and after its passage.

Passed April, 21, 1896.

NUISANCES.

A large number of complaints have been received of nuisances, and the Board has been called upon to abate them. In most instances these have been referred to the local health authorities with the request that the complaint be investigated and proper action be taken to abate the nuisance, should one be found. It has been necessary to explain to the person making the complaint that the State Board of Health has not been given power to abate nuisances, but that this matter is placed by law in the hands of the local health authorities. Section 2116 of the Revised Statutes provides that "the board of health shall abate and remove all nuisances within its jurisdiction."

It was a wise provision to place this duty upon the health authorities of the place where the nuisance exists. A nuisance, in most instances, is a purely local matter, affecting a limited number of people in the community in which it exists, and it is not a matter which concerns the state at large. On the contrary a contagious disease in any community threatens the entire state; and the State Board of Health has been given superior powers which may be brought into use if the local authorities fail to take proper steps to prevent its spread. Quite frequently it is stated in the complaint that the local board of health has been appealed to, but that no relief has been given. In such cases it is usually sufficient to call the attention of the local board to its duties under the law in order to have the nuisance abated. Where this measure fails, the matter, if of importance, is personally investigated by a committee of the State Board, and a satisfactory adjustment is usually reached. In other cases the local health authorities appeal to the Board for advice and assistance in abating a nuisance. This is given by correspondence, where possible, and where not, a personal visit is made. While nuisances are being continually created there has been, through the agency of local boards of health, a great improvement in this unsanitary feature of towns within the last few years.

LOCAL BOARDS OF HEALTH.

There are now 1,745 reported organized boards of health in Ohio. This leaves eighty-nine villages and 235 townships in which no board of health has been reported as organized.

There has been a gradual but constant increase in the efficiency of the local boards of health. A higher appreciation is being manifested by the public of the work in which they are engaged, and a higher class of men is being appointed to membership.

The payment of the expenses of boards of health is a matter which continues to create difficulty in many places. If there is a lack of sympathy between the council and the board of health, as frequently happens, the board is greatly hampered by having bills for legitimate and necessary expenses disallowed or cut down. In several instances the entire board of health have resigned because of such difficulty. It would be much better, in the judgment of this Board, if a sanitary fund were established in each city and village and placed under the direct control of the board of health. As council appoints the members of the board of health the expenditure of this fund could be safely guarded by appointing suitable men on the board. As the state is vitally interested in maintaining a high efficiency of its health service, every encouragement should be offered to these men who are giving, without compensation, their time and services for the public welfare.

There has been a marked improvement in health matters in rural districts, and the law constituting the trustees of the township a board of

health for the township has given the residents of agricultural districts much greater protection against disease. This has been specially noticeable with regard to diphtheria, which has prevailed extensively the past year in rural districts. Some complaint has been occasioned on account of some of the township boards having quarantined families having cases of this disease, without making any provisions for supplying them with the necessities of life. It is not contemplated by laws authorizing quarantine in contagious diseases that families so confined shall be supplied with such necessities *at public expense*, but boards of health are morally and legally bound to insure that such persons shall receive everything needed. It is to be remembered that quarantine is for the benefit of the *public* and not of the families quarantined. Boards of health *may* furnish to the quarantined indigent poor at public expense, medical attendance, medicine, food and all needful supplies, and such persons, when the additional misfortune of contracting contagious disease comes to them, should not be neglected.

A detailed account of the various operations of the Board during the year, together with mortality tables prepared from reports of local boards of health, may be found on subsequent pages.

Secretary's Report.

Abstract of Proceedings of Meetings of the Board Held During the Year.

JANUARY MEETING.

A regular meeting of the State Board of Health was held in Columbus at the office of the secretary, January 29, 1896.

Present: All members of the Board except Dr. Stanton. Dr. Wise presided.

On motion of Prof. Nelson, it was voted to dispense with the reading of the minutes of the last meeting.

The secretary presented his quarterly report, which, on motion of Dr. Miller was approved.

Messrs. Watt, city solicitor, Clark, city engineer, and Rakestraw, councilman, all of Toledo, appeared before the Board with a request to approve the outlets of sewers proposed for Auburndale and district No. 25, of Toledo.

On motion of Dr. Miller, amended by Prof. Nelson, it was voted to consider the request in executive session, and to require the application for approval to be placed in writing.

The committee on sewers of the council of Chillicothe came before the Board with a request to approve the outlet of a system of sewerage proposed for that city.

Dr. Miller moved that the request be considered in executive session. The motion was carried.

On motion of Prof. Nelson, the committee was requested to place its statement in writing.

The secretary, as chairman of the committee on vital statistics, presented a bill for the registration of vital statistics in Ohio. Dr. Miller moved to approve the bill. After some discussion, a motion by Dr. Kahle to lay on the table prevailed.

The secretary was instructed to present the financial needs of the Board to the finance committee of the House of Representatives.

Plans and a statement with reference to sewerage in Toledo were presented by Mr. Clark, city engineer.

Dr. Miller moved that the plans for the Auburndale sewer in Toledo be approved.

Dr. Kahle moved to lay the question upon the table.

The motion to table was carried.

Mr. Hartzell presented a report on a water supply proposed for the city of Norwalk.

On motion of Dr. Miller it was voted to adopt the report and approve the supply.

Dr. Kahle presented a report on an additional water supply proposed for the city of Sidney.

On motion of Dr. Miller it was voted to adopt the report and approve the supply.

Adjourned to 9 A. M. of the following day.

SECOND SESSION.

The Board met at 10:15 A. M., January 30, 1896.

Present: All members excepting Prof. Nelson and Dr. Stanton, Prof. Nelson having been excused to go home. Dr. Stanton arrived soon after the Board was called to order.

The committee from Chillicothe presented a petition for the approval of a system of sewerage for that city.

Mr. Hartzell presented the following resolution, which was adopted:

Resolved, That the outlet proposed for the system of sewerage for Chillicothe is not approved for the following reasons:

First—The outlet is in too near proximity to the inhabited portions of the city.

Second—No properly drawn plan of the proposed sewer system has been presented to the Board.

Third—No plans have been made for the purification of the sewage.

The question of approving the outlet for the proposed sewer in Auburndale was taken from the table.

The motion to approve was lost.

Mr. Geo. P. Hunter, of Warren, appeared before the Board in the interest of a bill to prevent the feeding of dead horses to hogs.

Dr. Miller moved that a committee be appointed to act with Mr. Hunter in preparing such a bill.

The motion prevailed, and the chair appointed Messrs. Hoover, Nelson and Probst.

On motion of Dr. Miller, it was voted to appoint Messrs. Hoover, Nelson and Probst as a legislative committee.

Dr. Hoover called up his resolution [illegible]d at a former meeting, to amend the by-laws by abolish[illegible]nittee committees on finance and

The resolution was adopted.

There being no further business the Board adjourned to meet the health officers and representatives of local boards of health in annual session.

C. O. PROBST,
Secretary.

APRIL MEETING.

The State Board of Health met in regular session at the Grand hotel, Cincinnati, April 22 and 23, 1896.

All members present. Dr. Wise in the chair.

On motion of Prof. Nelson it was voted to postpone the reading of the minutes of the last meeting.

Mr. D. E. Wright, director of public works of Cleveland, and Mr. C. G. Force, city engineer, submitted plans for sewerage for the city of Cleveland, and requested the Board's approval. They were requested to present the matter in writing.

The minutes of the last meeting were then read and approved.

Dr. Hoover reported that the Strawboard company at Circleville had been fined $200 and costs for polluting the canal and river at that place and below, and given a definite time in which to permanently abate the nuisance.

The secretary presented his quarterly report, which, on motion of Prof. Nelson, was approved.

QUARTERLY REPORT OF THE SECRETARY.

Mr. President:

I beg leave to submit the following report:

Five thousand copies of the proceedings of the January meeting of State and Local Boards of Health, were printed in the *Ohio Sanitary Bulletin*, and these were distributed as usual.

Smallpox has been entirely suppressed in the southeastern part of the state, where it was prevailing at the time of last meeting. Since that time the disease has appeared at Dayton, Lima and Zanesville.

A bill having been introduced in the Senate to amend the act establishing the State Board of Health so as to permit the city of Cincinnati to construct and extend its sewerage system without the approval of the Board, Dr. Stanton, Dr. Hoover, Prof. Nelson and myself appeared before the committee of the senate having the bill in charge, and presented arguments against its recommendation or passage. The bill has not yet been reported back by the committee, and there is little probability of its passage.

I desire to recommend that the quarterly bulletin published by the Board be changed to a monthly bulletin.

I would suggest that at the June meeting arrangements be made to hold a convention for the consideration of school hygiene, to which the superintendents of public schools should be invited.

The convention of this kind held by the Board several years ago, was highly successful, and many of the members present expressed an earnest wish that another such meeting should be called.

I have prepared a list of questions for discussion at the meeting, which will be presented, if desired.

The annual meeting of the National Conference of State Boards of Health will be held in Chicago, commencing June 10th. An interesting program has been provided.

A question of special interest for discussion is "What shall be done with immigrants who arrive on vessels infected with smallpox." This question was suggested by the recent scattering over the United States of immigrants arriving at Philadelphia and Baltimore on vessels having smallpox on board. I received the following telegram from Philadelphia, April 10:

DR. C. O. PROBST, Secretary of State Board of Health, Columbus, Ohio:

Twenty-three steerage passengers from steamship Illinois leave here today for the following places in your state: Cincinnati, Toledo, Niles, Mingo Junction, Cleveland, Toronto, Alliance, Hubbard and Berea. There was one case of varioloid on this vessel.

GEO. PURVIANCE,
Surgeon U. S. Marine Hospital Service.

On the 12th this telegram was received:

LOCUST POINT, BALTIMORE, MD. April 12, 1896.

Immigrants of steamship Crefield, on which one case of variola occurred, leave here today for Cincinnati, Cleveland, Sandusky, Toledo, Youngstown, Dayton and Grafton.

GEO W. STONER, Surgeon M. H. S.

In each case the health officers of the places named were at once notified by telegram to be on the lookout for immigrants from these vessels. The following letter was received from the health officer of Toledo:

C. O. PROBST, M. D., Secretary of the State Board of Health, Columbus, Ohio:

DEAR SIR:—I received your telegrams notifying me of the expected arrival here of persons from smallpox infected ships, one from Philadelphia, the other from Baltimore. I had six men out day and night from Friday evening until Tuesday evening searching for them. There were three, two, a man and wife from Baltimore. They are now in quarantine.

I desire to ask you whether there is not a neglect of duty [illegible] quarantine authorities. It seems to me that there is [illegible]

exposed persons all over the country. I have supposed that there were regulations forbidding such a course. At any rate it is an outrage on the authorities at their point of destination. My whole force were withdrawn from their daily duties in order to find these people. If this must be continued, can you not aid me by notifying me of the number, at what hour they take the train, and on what road. There is no more propriety in the sea-board authorities sending these people here than if we should ship them to some adjacent city, as Cleveland, Columbus, or Detroit. In the case of the young man from Philadelphia, he knew nothing of the existence of the disease on the ship, and in each case their luggage was not fumigated, but they were shipped forward at once.

Yours truly,

J. T. WOODS, H. O.

The assistant health commissioner of Chicago, Dr. Reilly, informed me that among the thirty-one immigrants from the steamship Crefeld who came to that city, was one, a two-year-old child, that had never been vaccinated.

It is questionable whether immigrants exposed on vessels to small-pox, should be permitted to leave the port of debarkation until fourteen days from the last exposure to the disease; and it certainly is an outrage that they should be sent at once to their destinations without vaccination or disinfection of baggage.

It is to be hoped that some action will be taken by the Conference of State Boards of Health which will give us greater protection against the introduction of small-pox by immigrants.

Respectfully submitted,

C. O. PROBST,
Secretary.

On motion of Prof. Nelson the secretary was instructed to inform all persons wishing to appear before the Board that they would be required to present their matters in writing, diagrams to be furnished when necessary.

The secretary read the following telegram:

HAMILTON, OHIO, April 22, 1896.

C. O. PROBST, Grand Hotel, Cincinnati, Ohio:

Missed train. Will you bring up Hamilton, Ohio, matter to issue bonds for street cleaning.

M. O. BURNS,
City Clerk.

Prof. Nelson moved that the secretary be instructed to say that the Board refuses to take any further action in the matter. The motion was carried.

On motion of Dr. Miller, the secretary was instructed to investigate the prevalence of some fatal disease reported at Centerburg.

The secretary presented a communication from Mr. Rudolph Hering relating to the proposed flushing tunnel for Cleveland.

Adjourned to 9 a. m. of the following day.

SECOND SESSION.

9 A. M., April 23, 1896.

All present.

Mr. Frank A. Kaler, Superintendent, and Mr. George L. Wells, engineer of water works of Bucyrus, appeared before the Board to request approval of proposed changes in water supply. They were requested to place the proposition in writing.

Dr Stanton presented a report on water supply for Loveland.

On motion of Dr. Miller the report was adopted.

The secretary reported upon water supply proposed for Cambridge.

On motion the report was approved.

A report by Mr. Hartzell upon sewerage for Salem, the report having been previously approved by mail vote, was presented, and upon motion, was adopted.

Plans for sewage disposal at Alliance, presented by Mr. L. E. Chapin, consulting engineer, and which had been previously approved by mail vote, were, on motion, approved.

Plans for Sewer District No. 13, in the city of Toledo, presented by Mr. W. G. Clark, city engineer, and which had been previously approved by a mail vote, were, on motion, approved.

A report by the secretary upon sewerage for Fostoria, the report having been previously approved by mail vote, was presented, and, upon motion, was adopted.

A report by the secretary upon the sewerage for the court house and jail at Delaware, the report having been previously approved by mail vote, was presented, and, upon motion, was adopted

A report by Dr. Stanton upon the sewerage for Wyoming, the report having been previously approved by mail vote, was presented, and, upon motion, was adopted.

A report by Dr. Stanton upon the proposed water supply for Osborn, the report having been previously approved by mail vote, was presented, and, upon motion, was adopted.

A report by Dr. Kahle upon the proposed water supply for Montpelier, the report having been previously approved by mail vote, was presented, and, upon motion, was adopted.

A report by Prof. Nelson upon sewerage for Marysville having been previously approved by mail vote, was presented, and, upon motion, was adopted.

THIRD SESSION.

Plans were presented for increasing and purifying the water supply of Bucyrus.

On motion of Dr. Hoover the secretary was appointed to make an investigation of the degree of purification of water that can be effected by the Hyatt filters now in use at Bucyrus, bacteriological tests to be made by the company by a bacteriologist satisfactory to the board, approval of the supply to depend on the results of such tests.

There being no further business, the Board adjourned.

C. O. PROBST,
Secretary.

JUNE MEETING.

A regular meeting of the State Board of Health was held in the parlor of the Hollenden hotel, Cleveland, June 17 and 18, 1896. All the members were present. Dr. Wise presided.

Mr. M. H. Levagood, mayor, and Mr. F. S. Reefy, president of the board of health, of Elyria, and Mr. L. E. Chapin of Canton, consulting engineer, were present, and on motion of Dr. Hoover were heard on the subject of a new water supply for Elyria.

Mr. Hartzell moved to approve the plans as presented. Dr. Hoover moved to lay the question on the table until an executive session could be held. This motion prevailed.

Mr. J. B. Strawn, consulting engineer for Willoughby, was present and presented plans for the sewerage of that village.

The minutes of the last meeting were read and approved.

A communication was read from Mr. Wells, engineer for the water works company having charge of the water works at Bucyrus, showing that no action has been taken in regard to bacteriological tests to show the efficiency of mechanical filters in use at that place.

The secretary presented his quarterly report which was approved.

QUARTERLY REPORT OF THE SECRETARY.

Mr President:

Your secretary begs leave respectfully to report as follows:

INSPECTION OF DOAN BROOK.

May 14th, at the request of Dr. Miller, I visited Cleveland, and with him inspected Doan brook with reference to its use for carrying off the storm overflow of sewers which it is proposed to build. Prof. Nelson,

who was in Cleveland, Dr. Miller and Mr. McBride, the president of the Cleveland park commission, inspected the brook a few days prior to this time.

It was agreed to recommend that the Board hold its next meeting in Cleveland to consider the matter. All the members favoring this, the meeting was so called.

ADDITIONAL WATER SUPPLY FOR MT. VERNON.

On May 15 I met Dr. Wise at Mt. Vernon, where it is proposed to acquire land for increasing the public water supply. Mt. Vernon now has a most excellent water supply derived from artesian wells, and it was feared that if this was not protected by buying a considerable amount of land adjacent to the wells, others might come in and cut them off from their supply. The question of issuing bonds to buy this land was to be submitted to a vote of the people on the day after we were there, and the water works trustees wanted the state board of health to endorse the plan. After an inspection of the ground we agreed to approve of the wisdom of the plan, and Dr. Wise left a writing to that effect.

WATER SUPPLY FOR BLUFFTON.

Bluffton, a small village in Allen county, made application or approval of a public water supply, and Dr. Kahle and I went there May 21. No plans had been prepared but council had purchased land containing a body of water which had filled an abandoned stone quarry. This artificial lake is several acres in extent, and in places is sixteen to seventeen feet deep. It is supplied by large springs, and is the same water reached in sinking wells in the village for private use. The lake is within corporate limits, but there are no houses or sources of pollution near it. It is well stocked with fish; the shores are overgrown with willows and water grass, and it contains considerable debris, such as boards, logs, etc. One end of this lake is not included in the purchase of the village. This part is quite shallow and would not afford a great quantity of water.

We were of the opinion that it would be unfair to pronounce on the supply as we found it, and did not collect samples for examination. We advised the authorities to build a tight wall shutting off that end of the lake they did not own; to cut a ditch around one side of it so as to shut off all surface drainage, and to pump the water out of the basin and thoroughly clean it, removing all vegetation. We promised, when this is done, to make another investigation, examine the water, and present their plans to the Board for approval.

June 3, at the request of Mr. J. B. Strawn, consulting engineer, I went to Willoughby and looked over lines of proposed sewerage for that village.

On the following day I visited Elyria, by request of the water works trustees, and inspected the source proposed for a new water supply for that city. As plans were not completed in either case, and as the Board was to meet in a short time in the neighborhood, I requested that the plans be presented at this meeting by delegates from both places, which was agreed to.

NATIONAL CONFERENCE OF STATE BOARD OF HEALTH.

June 10 to 13, I attended the meeting of the national conference of state boards of health in Chicago. The attendance was less than usual, about thirty delegates being present, but in other respects the meeting was a very successful one. I was re-elected secretary and shall be able to give you a full report of the meeting in a short time.

An important change was provided for in the constitution, which will allow port quarantine authorities, national, state and municipal, and also representatives of the state boards of health of Mexico, to become members. The name will be changed to the "American Conference of State Boards of Health."

A resolution was adopted calling the attention of the port quarantine authorities to recent negligence with respect to the vaccination, and disinfection of baggage, of immigrants arriving on small-pox infected ships.

The next meeting will be held in Nashville in August of 1897.

As special reports, to be submitted at the pleasure of the Board, I have to report upon influenza at Centerburg, disinfection of the city workhouse at Dayton, where small-pox recently prevailed, inspection of the Franklin county children's home, water supply of Canal Dover, diphtheria at Pemberville, investigation of a nuisance at Defiance, the water supply of Millersburg, and scarlet fever at Fredericktown.

Respectfully submitted,

C. O. PROBST,
Secretary.

A recess was taken until 9 A. M. of the following day.

SECOND SESSION.

Thursday 9:30 A. M. All members present.

The application of Elyria to approve proposed water supply for that city was, on motion of Prof. Nelson, taken from the table. Prof. Nelson moved that the proposed supply be approved, and that a preference for the western intake be expressed; [illegible] of approval convey the opinion of the Board that [illegible] for as soon as practicable.

The application to approve a sewerage system proposed for the village of Willoughby was taken up for consideration.

On motion of Dr. Hoover it was voted to disapprove the plans unless arrangements could be made for satisfactorily purifying the sewage before turning it into Chagrin river.

A communication was presented from Mr. Gray of Pittsburg, Pa. stating that for the protection of that city it had been decided to make bacteriological examinations and furnish antitoxin for all cases of diphtheria occurring within fifty miles of the city. This would include a part of Ohio.

The secretary was instructed to go to Dayton and examine the construction of storm water sewers in that city. The secretary presented a report on the cost of publishing a monthly sanitary bulletin. On motion of Prof. Nelson consideration of the report was deferred until the October meeting.

The secretary reported upon the water supply of Millersburg. On motion of Dr. Stanton it was voted to approve the supply.

The secretary presented a report proposing the tuberculin test for tuberculosis in milch cows, the test to be made by local boards of health with tuberculin furnished by the state board of health. On motion of Dr. Miller it was voted to appoint a committee of three to investigate and report upon the subject at the next regular meeting. The president appointed as members of this committee the secretary, Prof. Nelson and Dr. Miller.

Messrs. Holden, McBride and Pratt, representing the board of park commissioners, and Messrs. Rawson and Force, city engineer and assistant engineer, appeared before the board with reference to permitting a storm overflow from the proposed Doan street sewer into Doan brook.

Prof. Nelson was appointed a committee to advise with the authorities of Delaware in regard to securing a proper system of sewerage for that city.

Dr. Stanton reported that the board of health of Ripley was not doing its duty; that no meetings had been held, physicians were not reporting contagious diseases and burials were without permission of the board of health. On motion of Dr. Hoover, Dr. Stanton was requested to put his report in writing, and the secretary was instructed to send a copy to the council and board of health of Ripley.

The secretary presented a report and plans of a sewerage system proposed for Martin's Ferry. On motion of Dr. Stanton the report and plans were approved.

The secretary called attention to the new plumbing act, requiring boards of health in cities and villages having water works or sewerage to appoint a board of examiners, and to adopt rules and regulations governing plumbing, and suggested that the Board should prepare such plumbing regulations and recommend them to local boards for adoption.

On motion of Dr. Hoover it was voted to appoint a committee of three to draft plumbing regulations, and send them to the local health authorities mentioned in the plumbing act. The Chair appointed on this committee Messrs. Hoover, Stanton and Probst.

On motion of Dr. Stanton it was voted to proceed to the election of officers. Dr. Stanton presented the name of Dr. Miller for president. On motion of Dr. Hoover the secretary was instructed to cast a ballot for Dr. Miller as president. The secretary reported that he had cast a ballot as directed and Dr. Miller was declared elected as president. Dr. Stanton presented the name of Dr. Hoover for vice-president and moved that the secretary cast the ballot of the board for Dr. Hoover as vice-president. The motion prevailed. The secretary reported that he had cast the ballot as directed and Dr. Hoover was declared elected as vice-president.

Dr. Kahle moved that the president appoint three delegates including the secretary, to the next meeting of the American Public Health Association. Dr. Stanton moved to amend by substituting the words "president elect and secretary" for "three delegates including the secretary." The motion as amended prevailed.

The secretary presented a report of an investigation of a nuisance at Defiance arising from the stock yards of the Wabash railroad company. On motion of Prof. Nelson the secretary was instructed to send a copy of the report to the board of health of Defiance and urge immediate action in abating the nuisance.

Adjour ed to visit the park and Doan brook.

THIRD SESSION.

he Board reconvened at 4:45 P. M.

Dr. Hoover offered the following resolution which was adopted:

WHEREAS, The explosion of gasoline is of such frequent occurrence, and nearly always results in the loss of life or disfigurement of persons, and

WHEREAS, Such accidents are generally due to the careless methods of storage and handling of this substance, Therefore be it

Resolved, That this board earnestly urges upon local authorities the adoption and enforcement of such regulations of its use as will prevent such dire results.

Prof. Nelson moved a reconsideration of the motion to approve of proposed changes in the sewerage system of the city of Cleveland, as presented by D. E. Wright, director of public works, under date of April 22, 1896. The motion to reconsider was adopted.

Dr. Stanton moved that the changes in, and additions to the sewerage of the city of Cleveland, as presented by D. E. Wri-

public works, under date of April 22, 1896, be approved with the exception of the proposed storm overflows from Doan street sewer into Doan brook at Wade park. The motion was adopted.

Dr. Kahle presented the following resolution and moved its adoption:

Resolved: That after further investigation, it is the opinion of this board that the proposed storm overflows from Doan street sewer into Doan brook at Wade Park should not be permitted if avoidable. Be it further resolved that storm water, unless unavoidable, should not be carried in sewers with sewage; and the authorities of Cleveland are respectfully recommended to use every endeavor to make use of the separate system of sewerage for the Doan brook district. The resolution was adopted.

There being no further business the board adjourned.

C. O. PROBST,
Secretary.

OCTOBER MEETING.

A regular meeting of the State Board of Health was held at the Lima House in Lima, October 22, 1896.

Present, Drs. Wise, Stanton, Kahle and Prof. Nelson. Dr. Wise presided.

On motion of Prof. Nelson the reading of the minutes of the last meeting was dispensed with.

The Secretary presented his quarterly report, which was approved and filed.

A report by Drs. Hoover and Probst on the water supply of Marion was presented by the secretary. On motion of Prof. Nelson the report was approved.

Mr. Clark, city engineer, and Mr. Rakestraw, member of council of Toledo, appeared before the Board to request its approval of additional sewerage for the city of Toledo. They were asked to place their request in writing.

The secretary presented a report on the sanitary condition of Lakeside. On motion of Dr. Stanton the report was approved.

Dr. Stanton offered the following resolution, which on motion of Dr. Kahle was adopted:

Resolved: That this Board disapproves of the sanitary conditions existing at Lakeside, Ohio, as shown by the Secretary's report, and especially of the water supply and sewerage, and that the management be urged to make the necessary changes before the next season's opening.

The Secretary presented a report by Prof. Nelson on the water sup

ply of the Beebe House at Put-in-Bay. On motion of Dr. Stanton the report was approved, and the Secretary was instructed to confer with the proprietor of the Beebe House in regard to improving the water supply.

The city engineer of Toledo presented a request for approval of plans for sewer districts Nos. 26 and 27 of the city of Toledo.

On motion of Prof. Nelson it was voted to take up the request in executive session.

Mr. Frank Collins of Toledo appeared before the Board on behalf of the National Supply Co., and desired to know whether the word "latrines," as used in section 31 of rules and regulations for the construction of plumbing, as recommended by the Ohio State Board of Health, July, 1896, applied to range water closets. The construction and operation of the range closet was explained by Mr. Collins.

On motion of Dr. Kahle the secretary was authorized to inform any person making inquiry that the range water closets are not considered as coming under the provisions of section 31 of the rules and regulations recommended by the State Board of Health for the construction of plumbing.

Plans for public water supplies for Rockford, Oxford, and Tippecanoe City were approved; also plans for changes in the public water supplies of Ashtabula, Delaware and Medina; also a plan for a sewerage system for Willoughby, and a plan for sewage disposal at the Ohio State Reformatory.

The secretary presented a report on typhoid fever at Gibsonburg, which was approved.

A report of an investigation of the public water supply of Lancaster was presented by the secretary. The report was approved and the secretary was instructed to call the attention of the trustees of the Lancaster water works to the danger of pollution of the water supply by sewage.

On motion of the secretary the rules of the Board were amended so as to include cases of membranous croup among the contagious diseases to be reported by physicians and subjected to quarantine measures.

On motion of Prof. Nelson plans for sewer districts numbers 26 and 27 of the city of Toledo were approved, but only as a temporary expedient as regards their outlets.

Prof. Nelson submitted a report on plans proposed for the drainage of the Children's Home at Delaware. On motion of Dr. Stanton the report was approved.

On motion of Dr. Kahle the secretary was authorized to have printed monthly six thousand copies of the Ohio Sanitary Bulletin, without mortality tables.

The secretary submitted the annual report for 1896. On motion of Prof. Nelson the report was approved.

Dr. Stanton moved that the present members of the finance committee be continued in office until a new committee is appointed by the president. The motion was carried.

On motion of Dr. Kahle the president and secretary were appointed a committee to arrange a program for the joint meeting of boards of health in January.

There being no further business the Board adjourned.

C. O. PROBST,
Secretary.

SPECIAL REPORTS

—ON—

A. Contagious Diseases.

B. Public Water Supplies.

C. Sewerage Systems.

D. Sewage Disposal Works.

E. Nuisances.

F. Inspection of Public Institutions.

Contagious Diseases.

SMALL-POX IN SOUTHEASTERN OHIO, AT DAYTON, LIMA AND LOCKLAND.

To the State Board of Health:

GENTLEMEN:

At the meeting of the Board in October 1895, report was made of outbreaks of small-pox in Bridgeport and Martin's Ferry. At that time there had been sixteen cases in Bridgeport, two in the adjoining township of Pease, and six in Martin's Ferry. The disease seemed to be checked at Martin's Ferry and Bridgeport when, owing to mistakes in diagnosis, a fresh crop of cases developed in both places. In Bridgeport a man named Powell died after three days illness from what was pronounced post mortem *purpura hemorrhaghica*. It was in fact small-pox, and a large number of cases resulted from exposure to this case. A little later a man named McConaughy, after two weeks, sickness, died of what was called rheumatism with heart complications. The diagnosis is still in dispute but a number of cases of small-pox seem to be only traceable to exposure to this case.

In Martin's Ferry a case of small-pox was called typhoid fever until after a large number of people were exposed. There was great trouble in managing the disease in this place. The health officer was an old man unable physically to do the work imposed upon him, and besides not a physician. When a case of small-pox was reported the house was flagged and a guard placed over it, but there was no one to look properly after vaccination of the inmates of the house or hunt up exposed persons. The board of health had taken the position that they would not furnish medical attendance nor supplies to any who could pay for them or get credit, and if they could do neither, held that the township trustees must take care of them as paupers. Finally the board employed a physician for $25.00 a month, the lowest bidder, to treat cases that had no other physician. The board was unable to furnish me a list of their cases. I spent two days in going from house to house, hunting up the cases, and found forty-seven in twenty-three houses. I also found thirty-three persons in small-pox houses who had never been vaccinated, or who had not been for years, and gave the board a list of a number of persons who had been exposed, and who were at large and unvaccinated.

As the disease was being badly managed, and was rapidly spreading in Martin's Ferry, it was deemed wise to have the State Board assume control, or at least to adopt certain regulations and require the local boards to enforce them. Accordingly I drew up the following rules on December 15th and mailed a copy to each member, requesting a vote by telegram :

REGULATIONS OF THE OHIO STATE BOARD OF HEALTH FOR THE SUPPRESSION OF SMALL-POX IN BRIDGEPORT, MARTIN'S FERRY AND VICINITY.

1. The board of health of Martin's Ferry, Bridgeport and vicinity where small-pox is prevailing, shall at once enforce measures to secure the vaccination of the inhabitants of their respective communities.

2. All houses containing small-pox shall be securely guarded day and night, to prevent entrance to or exit from such houses.

3. Physicians shall be required to report at once to the health officer all cases of disease to which they are called which in any manner simulate small-pox.

4. It shall be the duty of the board of health to cause such cases to be examined at once by one or more reputable physicians; and "suspects" shall be strictly quarantined until it is positively known that they are not suffering from small-pox.

5. No person shall be employed as guard or nurse for small-pox patients unless he or she has been recently vaccinated.

6. All employees of railroads, steamboats or other transportation companies passing through or touching at Bridgeport or Martin's Ferry shall present evidence of recent vaccination.

7. No railroad or other transportation company shall receive for shipment household goods of any character from Bridgeport or Martin's Ferry.

8. The secretary of the Ohio State Board of Health is hereby authorized to withhold, suspend or modify these regulations, or to make and embrace such additional orders or regulations as the exigencies of the situation may demand.

9. Any person violating these regulations shall be punished as provided in sections 2 and 5 of an act passed March 14th, 1893.

Attest: C. O. PROBST,
Secretary.

Adopted December 16, 1895.

On the 16th I received the affirmative votes of a majority of the members, and on that date served a copy of the rules on the boards of health of Bridgeport and Pease township, and on the following day on the board of health of Martin's Ferry.

With some difficulty a new health officer was secured for Martin's Ferry on December 18th, Dr. Darrah being appointed. Mr. Lindemuth, a former health officer, was made his assistant. The city was divided into eight districts and a physician employed in each district to make a house to house visit for vaccination. So well was this work done that on January 7th the health officer reported that there were less than one hundred people in the city who had not been vaccinated within the previous year. The rules of the State Board were strictly enforced, as well as additional instructions given for disinfection, releasing of patients, etc.

But twelve cases of small-pox occurred in Martin's Ferry after these rules were put in force, and only three of these were in houses in which the disease was not already present. In all, there were seventy-four cases in Martin's Ferry and seven deaths. The last case was reported January 20th.

In Bridgeport vaccination was also quite generally enforced, but few of the people remaining unvaccinated, the health officer reported, though he was unable to give the exact number. Since Powell's death which occurred November 18th, and which started the second outbreak, there were thirty-four cases in Bridgeport, giving a total for the outbreak of fifty-nine cases and eight deaths.

From Bridgeport, Martin's Ferry or Wheeling, W. Va., the disease was carried in Ohio to East Liverpool, Zanesville, Lisbon, Pease, Pultney and Colerain townships in Belmont county, and three townships in Monroe County. Pease, Pultney and Colerain townships adjoin Bridgeport. There were ten cases in Pease township, two in Pultney and three in Colerain. No deaths,

The case at East Liverpool was a base ball player, taken sick December 5th, and not quarantined until the 11th. On the 7th he was shaved at a barber shop and in the evening attended a public ball. Although a large number of persons must have been exposed, the only other case to develop was the patient's brother who was quarantined with him. I went to East Liverpool December 19th by request of the board of health, saw the patient and confirmed the diagnosis. I urged general vaccination. The board ordered all the school children vaccinated and arranged for vaccination of the employees of the potteries and other large works. The origin of the patient's disease is unknown.

The case at Lisbon was reported December 18th. The health officer reports that the patient was in Martin's Ferry about the 10th and was sick the 15th, too short a time for his exposure to have been in Martin's Ferry on the 10th. The man was living in a shanty with three other Germans. Ten other Germans living in a shanty near by were exposed. The patient was promptly quarantined and exposed persons vaccinated. An additional case was reported there January 22nd.

George Landenberg, living near Miltonsburg, Monroe county, was taken sick with small-pox December 13th. He had been in Wheeling, W. Va., about two weeks before, and is supposed to have contracted the disease there. His case was diagnosed lagrippe, and before the true character of his disease was known about one hundred people were exposed to small-pox. All the inmates of his house, six in number, contracted the disease, and two of them died. A son, George, living in another house in the neighborhood, and a child of Shrader, also a neighbor, contracted the disease. Other cases were Fritz Stalder, in Miltonsburg, and Adam Myers and son, three miles south of Woodsfield.

Great excitement prevailed in Southeastern Ohio on account of the

disease. The most absurd restrictions were placed on traffic and travel. The running of trains was stopped, in some instances, and all shipments were stopped not only from places where there was small-pox but from many places entirely free from the disease. Uhrichsville was one of the first places to quarantine, and included Bellaire in the list of towns quarantined against. Quaker City, later, quarantined against Uhrichsville, although there is no direct connection between the places, and also included Canton in the list. The board of health of Beallsville, Monroe county, acted entirely without reason. A man came from Pittsburgh to Bellaire and without stopping there, except to change cars, (there was no small-pox in Bellaire) went on to Beallsville and put up at a hotel. The board of health promptly quarantined the hotel. People suffered from the lack of farm produce and fresh meat. At Bridgeport a man went out to the quarantine line to get a calf. The owner of the calf had a long rope around its neck and wanted simply to throw the rope over the line to allow the butcher to take the calf away. He was not allowed to do so. Many other ludicrous incidents of similar character occurred. Letters and telegrams poured into the office urging the Board to interfere. I laid the matter before the President, and it was decided to invite the various boards of health to send delegates to meet a committee of the Board in Bellaire on January 8th. The President appointed Dr. Hoover and myself a committee to represent the Board. The meeting was held in the city hall, Dr. Hoover presiding, and myself acting as secretary. There were twenty-one boards represented. I was able to make a report of the exact situation in Bridgeport, Martin's Ferry and vicinity, having made an investigation the day before. The various delegates reported upon the quarantine measures being enforced in their respective places. Your committee acted merely in an advisory capacity, but was able to effect many needed changes in quarantine and a much better understanding was arrived at of the small-pox situation, and of the steps necessary to guard against the disease.

It was reported to me at the meeting that at Colerain, a small village about eight miles from Bridgeport, they had been having an epidemic of what was called chicken-pox, but that many adults were affected, including the wife of one of the physicians. It was reported that a brother of this woman contracted small-pox from her. Quarantine had been so strict against Bridgeport and Martin's Ferry that it was impossible to obtain authentic information. I was urged by the authorities of Bridgeport and Martin's Ferry to make an investigation. Accordingly, the health officer of Bridgeport, Dr. Heinlein, and myself drove to Colerain on the day after the Bellaire meeting. We found that an epidemic had prevailed there a few weeks before, but from a history of the cases and the appearance of some of the patients we were able to examine, concluded that the disease was chicken-pox. The fact that a considerable number of adults were affected is certainly unusual.

On the next day, at the request of the authorities, I visited Miltonsburg, Monroe County, driving there from Beallsville. The facts in regard to smallpox there have already been given. I met the board of health of Miltonsburg, of two adjacent townships, and of Beallsville, and gave advice as to measures for the prevention of small-pox. I also succeeded in making a better adjustment of quarantine measures.

March 7th, the health officer of Zanesville reported a case of small-pox in that city. The patient, Will Tompkins, was admitted to the city hospital, March 3d, under a diagnosis of typhoid fever.

Tompkins is reported to have visited an uncle in Bridgeport about two weeks prior to this illness, the uncle having had small-pox some weeks before. With Tompkins was a lad named Kinkade; and it is reported that both of the boys slept on a bed lounge which had been used by Tompkins' uncle when he had small-pox. The hospital was quarantined, the patient being considered to be in a condition making it dangerous to remove him. Kinkade was taken with a chill the day before Tompkins was removed to the hospital, and he was quarantined in his home, a younger brother and a grandmother being the only other occupants of the house. March 21st the brother was reported as having small-pox, and March 31st the grandmother was so reported. She died on the night the case was reported to me.

April 2d another case was reported in a different part of the city. The disease could not be traced to the other cases, and the origin is not known. No other cases have been reported.

To sum up the results of the small-pox outbreak at Wheeling, W. Va. (where the disease originated), there were fifty-nine cases in Bridgeport, seventy-four in Martin's Ferry, fifteen in townships adjoining these places, thirteen in Miltonsburg and vicinity, two in Lisbon, two in East Liverpool, and five in Zanesville; a total of 168 cases, of which seventeen were fatal.

SMALL-POX AT DAYTON.

On February 12th the health officer of Dayton reported by letter that he had that day quarantined the city workhouse on account of a suspected case of small-pox. The patient was a prisoner who had been confined in the workhouse for forty-eight days prior to that time. On the 21st of February he reported that the case was undoubtedly small-pox, and that there were no new cases. March 18th he reported eighteen new cases in the workhouse. March 20th, in answer to a letter of inquiry, he reported two cases outside, and thirty one cases with four deaths within the workhouse. The board of health ordered free vaccination on that date. March 24th, and again in reply to my inquiry, the health officer reported two additional cases outside the workhouse. He was unable to account for any of these four cases. The [illegible] the

first case in the workhouse is also unknown. Cases of smallpox continued to develop in Dayton outside the workhouse. This created some public alarm, and several meetings of a citizens' committee were held to consider measures to control the disease. April 8th a representative of the committee called on me and requested me to go to Dayton and make an investigation of the small-pox situation. I went to Dayton on the 10th, met the citizens' committee, which is composed of representative men, and also met the health officer and board of health. Much dissatisfaction was expressed in the citizens' committee with the health officer, who, it was held, was not enforcing proper measures to suppress smallpox. The board of health had just erected a quarantine hospital, but, it was claimed, after weeks of unnecessary delay. One of the most serious charges brought against the health officer was that he had publicly stated that small-pox is not contagious until the second day of the eruption, and that actual contact was required to contract the disease.

I spent considerable time in trying to verify these charges, and found many of them were merely unproven rumors. The health officer admitted having made some mistakes, but emphatically denied that he had made any such statements regarding the time when smallpox becomes contagious.

The citizens' committee desiring a statement for publication in the daily papers, was given the following:

MR. S. M. DAVIES, Chairman Citizens' Committee, Dayton, Ohio:

DEAR SIR: At your request that I should prepare a brief statement of the smallpox situation in Dayton, and outline the steps that are considered necessary in preventing spread of the disease, I beg leave to submit the following:

Up to the present time--April 11th--there have been in Dayton forty-two cases of smallpox with four deaths. Thirty-two of the cases and all of the deaths occurred in the workhouse. The ten cases in the city proper have been distributed as follows: One at 15 Brady street, one at 317 S. Perry, two at 926 Home avenue, one at 25 Hussong lane, one at 1227 W. Fourth street, one at 247 Maple, one at 18 Joe street, one at 1700 E. Third street, and one at 1215 W. Fourth street. The first two cases have recovered; the others have been removed to the quarantine hospital, which is two miles from the city, except one at 18 Joe street and one at 1700 E. Third street. There are but two cases in the city and eleven cases in the quarantine hospital. These ten cases occurred, or rather they were quarantined between the dates of March 19th and April 10th.

There have been no smallpox patients in the workhouse for more than two weeks. At this time there are but six persons there, all females, who are being held on account of their possible exposure to smallpox. The superintendent and his family are also quarantined there.

The present situation is not at all alarming, but the danger cannot be said to be over. It is therefore important that there should be no relaxation in restrictive measures, and that the utmost vigilance should still be exercised.

As to the measures that should be taken for the prevention of smallpox, it is impossible to give here more than the broadest outlines. Most, if not all of these, your health officer informs me he is now enforcing.

First of all there must be an immediate report of the case. Smallpox is possibly contagious from the first day of the initial fever, and it is highly important that the patient should be separated from others at the earliest possible time. It is impossible to positively diagnose smallpox before the eruption appears, but the symptoms preceding the eruption may lead one to *suspect* smallpox, and such cases should be reported *at once* so the health officer can quarantine the patient until the disease is known to be not smallpox.

When the disease is declared to be smallpox the patient should be removed to the quarantine hospital; his dwelling should then be thoroughly disinfected, and the family and all others who have been exposed to the disease should be quarantined in their homes for not less than fourteen (14) days from the date of their last exposure. In the case of those living in the house with the patient the date of last exposure should be counted from the day after the house is disinfected. It is of great importance that all persons who have been exposed to smallpox should be found as soon after exposure as possible and be vaccinated. If this is successfully done within the first three or possibly four days after exposure, the person will probably escape the disease or have it in a light form.

When the patient, for good reasons, cannot be removed to the quarantine hospital (and it should be known that the chances for recovery are usually much better at the hospital than at home) he must be strictly quarantined at his home. To do this it is necessary to have two guards on duty at all times. Guards and also nurses should be vaccinated before going on duty, even if they have had smallpox, as the disease may occur a second time. It requires the utmost vigilance to make a house quarantine effective. Nothing should pass out of the house, not even money. When the patient has died or recovered the house and all its contents should be most thoroughly disinfected, and under the direct supervision of the health officer, or some one appointed by him. When this has been done, the patient, who should have had several baths in a disinfectant solution, may be given fresh clothing and permitted to go at large. The other inmates should be kept in quarantine and under observation for not less than fourteen (14) days from the day after disinfection of the house is completed.

In spite of the best quarantine measures possible the disease often escapes control; but the greatest danger of its spread comes from concealed, or mild, unrecognized cases. It is so often mistaken for chicken-pox that physicians, during an epidemic of smallpox, should be urged to report all cases of that disease so that they may be closely watched. On account of these dangers of exposure to smallpox general vaccination and re-vaccination should be urged. Your board of health is to be commended for having provided for free vaccination, but this work should not be stopped. It is estimated that 20,000 persons in Dayton have been recently vaccinated. This leaves 60,000, many of whom must be unprotected against smallpox. These should be looked after. It would be wise for manufacturers and others employing a large number of persons, to make vaccination a condition of employment. About 1,500 school children, it is estimated, have entered school since the vaccination of school children ordered by the state board of health two years ago. These should be vaccinated before being allowed to attend school.

It is important to remember that vaccination, in many cases, gives protection for but a few years. In England, before the days of general vaccination, smallpox was essentially a disease of childhood. Now, from neglect of revaccination, it is a disease of adult life.

The prevention of smallpox may be briefly summed up in providing for, first, early isolation of the patient, by which the poison of the disease may be confined; second, disinfection, by which this poison is destroyed, and third, vaccination which gives protection against the disease, if e

By a proper and thorough enforcement of these measures—and all citizens should in every possible way assist the board of health and its health officer in their enforcement—your city should soon be free from the disease.

Very respectfully,

C. O. PROBST,
Secretary.

April 16th the health officer of Dayton reported three new cases, all discovered on the 14th. One of the cases was concealed, and was in the seventh day of eruption when found.

No other cases occurred in the workhouse, the smallpox patients all being taken from there to the new Infectious Disease hospital the latter part of March. Cases appeared in the city until in May. There were in all 32 cases in the workhouse, of which number 4 died, and 29 cases in the city proper, with 4 deaths.

On April 28th, I was summoned to Dayton by a telegram from the health officer. On arriving I learned that he wanted advice as to what should be done with the stock and materials belonging to the brush works in the city workhouse.

This company employ prison labor, and their shops and contents, excepting one room, had been exposed to smallpox infection. The made stock and unmanufactured materials was valued at about $5,000. I inspected the shops in company with the health officer and general manager, and gave the former the following instructions in writing:

DAYTON, OHIO, April 28, 1896.

DR. A. H. IDDINGS, H. O., Dayton, Ohio:

DEAR SIR: At your request I this day inspected the brush shop in the city workhouse, where smallpox recently prevailed, and have the following suggestions to offer as to the treatment of the contents of said shop:

Materials and articles of all kinds, including completed and unfinished work, stock, patterns, tools, etc., which may be wetted without injury, may be disinfected by being kept in boiling water for one hour, or in cold water containing corrosive sublimate in the proportion of 1 to 500.

Stock in bags and boxes which have not been opened may be saved by removing the contents and destroying the containers. Work benches, furniture, machinery, etc., should be washed with the corrosive sublimate solution, and then be whitewashed or painted.

The remainder of the contents of the brush shop, excepting the contents of the adjoining store-room, should be destroyed by burning. The contents of the store-room which was kept locked and was entered only by the superintendent of the brush shop, should be disinfected by sulphur fumigation, using not less than four pounds of sulphur to each 1,000 cubic feet of air space, after making the store-room as nearly air tight as possible.

The floor of the brush shop should be very thoroughly drenched with the corrosive sublimate solution, and the ceiling and side walls be given at least two coats of lime wash, freshly prepared.

Disinfection should be done under the direct supervision of a competent, trustman, appointed by yourself. In disinfecting by boiling water or by corrosimate solution, care should be taken that all articles are completely sub-

merged during the time of disinfection. Articles, after disinfection, should not be restored to the brush shop until after the shop itself has been thoroughly disinfected.

Respectfully,

C. O. PROBST,
Secretary.

SMALLPOX AT LIMA.

The day before smallpox was reported at the Dayton workhouse a prisoner by the name of Simmons was discharged from there who went to Lima. He was taken sick March 1st. The health officer saw him that day and pronounced the disease smallpox, quarantining the family.

There were four other persons in the house with the patient and all but two of these contracted smallpox. On April 4th another case developed across the street from the house where the disease first appeared. There were seven persons in this same family and of these five were attacked with smallpox. None of the cases resulted fatally.

SMALLPOX AT LOCKLAND.

A case of smallpox developed at Lockland about the 20th of March in the person of a colored barber of that place, named Robert Cook. The case was discovered early and the patient was taken to the infectious disease hospital of Cincinnati. Strict quarantine was maintained over the family of the patient and no other cases developed. The origin of this case is not known. The patient was in Dayton for a few hours on the 1st of March, and visited one or two houses in the neighborhood of the workhouse. His exposure there would mean an incubation period for the disease of twenty days, which would be very unusual.

Respectfully,

C. O. PROBST, Secretary.

The health officer of Bridgeport, Dr. J. A. Heinlein, who treated nearlyall of the cases that occurred there, has furnished the following interesting report on smallpox at Bridgeport:

REPORT ON SMALLPOX AT BRIDGEPORT.

BY J. A. HEINLEIN, M. D., HEALTH OFFICER.

The first case of smallpox occurred in Aetnaville, (third ward of Bridgeport) the latter part of June 1895. It was brought over from Wheeling, where the disease had been prevailing for some time.

Just about this time the family (consisting of wife
of this man who had smallpox, moved here. W
weeks, the mother and three children took sic
who had always been an invalid, died. The co

with the people, made arrangements with a Bridgeport undertaker, and had a public funeral. All this took place before we discovered that there was smallpox in the family. The cause of the child's death was pronounced by the attending physician "cerebro-spinal-meningitis." (We have included this as one of the deaths from smallpox).

The fourth child was with the other sick ones at the time, but did not take the disease, because she had been successfully vaccinated two years before. The others were vaccinated at the same time but not successfully. The mother and father had been vaccinated when quite young. The former had varioloid and the latter discrete smallpox.

This family exposed the public to smallpox from the latter part of June until the 11th of July, before the disease was discovered and quarantined. It would naturally be supposed, from the extended time of exposure, with a public funeral, that a great many cases would have resulted, but I can trace only four, namely: Two in Aetnaville, one in Martin's Ferry, and another in a young man, who was so badly frightened by the disease that he fled to the West, where he had relatives, but in a short time he took the disease and died.

One of the cases in Aetnaville, traceable to this family, was David Williams, a young married man who resided about a square from them on the next street. He visited the family while the father was sick, and smoked the man's pipe. It was on the eleventh of July that we discovered that Williams had the disease. In fact this was the first family we visited, and he had discrete smallpox in the vesicular stage. The eruption appeared on him about the 7th of July. His wife, and another family living in the same house and on the same floor, consisting of husband, wife and two children, were exposed to the disease continuously up to the 11th of July. On that day all were vaccinated, and the vaccination proving successful none of them took smallpox. The mother of this neighboring family was pregnant in the sixth or seventh month, and on this account she strenuously objected to being vaccinated, but after persistent persuasion and on being told of the danger her life was in, she finally consented. The second case in Aetnaville was in a child about two or three years of age who lived on the other side of the double house where family number one had it. This little girl was hidden from us by her parents. She recovered, but her three weeks old sister took the disease in a most malignant form and died. All this happened after the quarantine was taken off the house. We discovered the corpse on the day of the funeral, just in time to prevent another public funeral. From this family it spread to others making a total of fifteen cases in Aetnaville. Thirteen of these recovered. On October 4th, quarantine restrictions were removed from all the cases in town; but on the night

[illegible]tober 1st, Sallie Norman, who was living in Wheeling, was brought

and left at the Wheeling Creek Coal Works, which is

[illegible]port. She was in the beginning of the papular

stage on the next day, and was one of the worst confluent cases I have ever seen.

Another case occurred in Aetnavile on October 19th; one in Bridgeport on Pike street on October 21st, and at the Coal Works on November 1st; the latter was varioloid and occurred in another family.

These cases recovered, and November 11th quarantine was raised on all. At this time, we were congratulating ourselves on the disease being stamped out, but between the 1st and 15th of December about twenty-eight cases developed. Others took it from these, and a few cases occurred later the source of which we were unable to trace. The last case appeared on the 23rd of January, 1896, and by the 27th of January, quarantine was lifted from all except three families. These were discharged and quarantine finally raised on the 17th of February. From that date up to the present time we have not had any more smallpox.

When the smallpox appeared the last time it took but a short time to discover its source. There were two patients, both young male adults; one died on the 21st of November after an illness of just five and a half days. The other died on the 28th of November after an illness of about ten days. The attending physician called me in just a few hours before death occurred in each case; in fact both were dying when I saw them.

These were irregular and peculiar cases. One who had never seen 'purpura variolosa," would think it a queer kind of smallpox. It is my opinion now, that these cases were smallpox, and that we were mistaken in our diagnosis. Why I think so is because I can trace nine cases directly to the one and ten to the other. The young man who died on the 21st of November, was sick about five and a half days. He was at the opera house on Friday night, November 15th, and while there felt slightly ill. On the following day he was able to go to the mill where he worked and get his pay. During this time he felt slight pain in his back and a light headache. On the following day, Sunday, the attending physician saw him, I think, for the first time. The patient was complaining of excruciating pain in the middle and lower part of his back, and on this pain large hypodermic doses of morphine had no effect. On Wednesday morning at 5 o'clock I was called by the attending physician. The patient was still complaining of great pain and was very restless—very little fever—rapid pulse and rapid respiration. He died that morning about seven o'clock. About two hours before his death purpuric spots began to appear and when I saw him his abdomen and lower extremities were covered by them. One ecchymotic spot appeared in one eye. At the time we could get no history of exposure to small-pox. We talked about the case and wondered whether it could have been small-pox. A post mortem was suggested and held with two other physicians in attendance. Had we not held the post mortem I think we should have had enough suspicion to have demanded a private funeral. Another reason why we desired a post mortem was that at one

time this man was badly mashed through the breast and back and there was quite a deformity in the spinal column. All of the organs examined were in a healthy condition except the liver. It was a large white liver which in my opinion had been diseased for a long time. We naturally attributed the purpura to the weakened condition of the system, brought about by the diseased liver, as this does occasionally happen. But the true cause, in this case I think, was due to the smallpox poison in the system, and on account of the drained liver not being able to perform its functions, resulted in this irregular and malignant form of smallpox.

The total number of cases in Bridgeport was fifty-nine. In Pease township, ten, and in Pultney township, three, making a grand total of seventy-two cases. I had personal charge and treated sixty-three of them. Of the sixty-three I lost three. One a child ten days old. Of the seventy-two cases there were thirty-four males and thirty-eight females. There were twelve under and sixty over five years of age. The youngest who died, was a boy born with the disease in his system, who was ten days old. The oldest who died, a male, was about thirty years of age. The youngest who recovered from the disease was three weeks old. The oldest who recovered was a man eighty-three years of age. The total number of confluent and hemmorhagic cases was nineteen. Total number of discrete cases, thirty-one, and of varioloid, twenty-two.

Total number of deaths, eight: Two infants—one ten days old, and the other three weeks old. One girl three years and another about eight years old. Three young male adults, and one young married woman. Of these eight deaths, I think there was but one who had never been vaccinated. Only one of the confluent cases had been vaccinated. About half of the discrete cases had been vaccinated. These were all older people who were vaccinated in their younger years. Most of the other cases of discrete smallpox were in children who had never been successfully vaccinated. Every one of the varioloid cases had been successfully vaccinated at some time or other.

Smallpox was found in forty-one families. In some houses there were two families, but these were counted as one in this list. The number of persons exposed in all was 235. By early and successful vaccinations including some who had protection by former vaccinations, very few took the disease.

INVESTIGATION OF AN EPIDEMIC AT CENTERBURG.

To the State Board of Health:

GENTLEMEN:

In accordance with my instructions I visited Centerburg, Knox county, Saturday, the 25th of April, to investigate the reported prevalence of some fatal disease at that place.

It appears that some time in November, 1895, an epidemic of measles began which swept over the village, affecting a large number of persons and continuing until a few weeks ago. The disease was of mild form, no deaths resulting from it. There are no cases of measles in the village at the present time.

About the second week in December, 1895, an epidemic of influenza began. This also was widespread, and somewhat severe in character. The disease manifested a special tendency for the neck and throat. In a large number of cases there was swelling of the external glands of the neck, with pain and stiffness of the muscles, and many cases were attended with more or less severe pharyngitis.

Later, erysipelas made its appearance, and eight cases of that disease developed. The last case of erysipelas was discharged cured April 23d, and the village is now entirely free from this disease, and from influenza.

Fourteen deaths have occurred in Centerburg since March 3d of this year. This unusually large number of deaths, and more especially the exaggerated newspaper accounts of it, created great alarm in the neighboring towns and country, and Centerburg has been shunned by outsiders for some time.

Two of the deaths are ascribed to influenza, three to erysipelas, two to peritonitis, two to nephritis, one to gangrene, one to apoplexia, one to prostatitis, one to rheumatism and one to organic heart disease. It is interesting to note that the cases of gangrene, prostatitis, rheumatism, both cases of nephritis, two of the three cases of erysipelas, and one of the two cases of peritonitis, were preceded by an attack, or at least the first symptoms of influenza.

The age feature of the decedents is also of interest. Only three were below the age of fifty, (37, 39 and 47), and the average age of all was sixty-two years

The influenza epidemic was by no means confined to adults, a large number of children being affected. Of the fourteen who died, ten had influenza, though this is given as the immediate cause of death in but two cases. Of the four who did not have influenza, one died of apoplexia, aged eighty-four; one from erysipelas, aged fifty-eight; one from peritonitis, aged thirty-seven, and one from heart disease, aged seventy.

It is my opinion that the excessive mortality in Centerburg during the past six weeks is, in the main, attributable to the epide
enza, which acted both as a direct and predisposing cau

The sanitary condition of the village is most excellent, far better than is usually found in villages of this class. Streets, alleys and yards were remarkable for their cleanliness. Some time ago the board of health prohibited the use of privy vaults and required receptacles of wood or brick to be built above ground. I was informed that the village has been remarkably free from typhoid fever since this was done. (Wells are depended upon for water supply.)

As the village is now free from any unusual disease, and, as stated, is in excellent sanitary condition, there is no present occasion for any further action on the part of this Board.

I am indebted to the four physicians of the village, Drs. Lewis, Gunsaulus, Phillips and Merriman, for material aid in making this investigation.

Respectfully,

C. O. PROBST, Secretary.

REPORT ON SCARLET FEVER AT FREDERICKTOWN.

To the State Board of Health:

GENTLEMEN:

On the 8th of June I was called to Fredericktown by the board of health on account of an outbreak of scarlet fever.

Upon arrival I met three physicians in whose hands all the cases occurred, and at their request examined most of the cases, as some of the citizens were inclined to doubt the diagnosis of scarlet fever, and for this reason the board of health was meeting with some difficulty in maintaining quarantine.

I found fifteen cases in ten families. There had been no deaths. Most of the cases were quite mild, with slight eruption; but in all the throat symptoms were tolerably severe. Many of the cases were ushered in with vomiting, high fever, running to 105 in one case and 104 in another, with a general scarlet rash, followed, in some cases, by desquamation such as is only seen in scarlet fever. In others there was little or no desquamation. There is no doubt, I think, that the diagnosis of scarlet fever was correct.

Facts I was able to obtain bearing upon the origin of the disease are of much interest. Seven of the patients in six different families were taken sick on June 1st, two on the 2d, one on the 5th, one on the 6th and four on the 8th. The case on the 6th, and three of those on the 8th were in families were the disease appeared June 1st, and may be considered cases of secondary infection. The sudden appearance of the disease in so many different households at one time points to a common

source. There was no public gathering at which all of those first been present, nor had they all co-mingled in any way at a or the incubation period of scarlet fever) they could

on.

Upon inquiring into the milk supply it was found that in each instance the families where cases occurred procured milk, wholly or in part, from one milkman. This man entered the dairy business about two weeks before the outbreak, and was supplying, he said, about eighty families with milk. Thus nearly thirteen per cent. of the families he supplied with milk had scarlet fever. The milkman was questioned closely in regard to illness in his family. He stated that along in March or April one of his two children had tonsillitis. Later his baby was ill from teething, but had a rash at the time. He denied having said, some days before, that his little girl, when she had sore throat, had a rash and afterwards "all peeled off." I interviewed three reputable witnesses, however, who stated to me that they heard the milkman make this statement. The physician who treated these children was, unfortunately, away, and I was unable to consult him; but the father protested that this physician had diagnosed tonsillitis in one and teething in the other.

A meeting of the board of health was called and the milkman appeared before it. I gave it as my opinion that the facts pointed strongly to the milk having been the means of distributing the disease, though this could not be positively asserted. I advised the board to stop the sale of the milk until the milkman's house, wagon, utensils, etc., had been disinfected under the supervision of the health officer, and gave instructions for doing it. I also advised destroying the man's milk tickets, new ones to replace those destroyed.

The board was maintaining strict quarantine. All houses were placarded, and all inmates kept in except, when the disease was first reported, the breadwinner of the family was allowed to go out, if he desired, but not to return to his home until the patients had been discharged and the house disinfected.

Respectfully,

C. O. PROBST, Secretary.

REPORT ON TYPHOID FEVER AT DYESVILLE AND HAYDENVILLE.

To the State Board of Health:

GENTLEMEN:

At the request of Senator Carpenter, of Carpenter, and Mr. Vale, of Dyesville, I made an investigation of typhoid fever at these places. Carpenter and Dyesville are stations on the T. & O. C. Railway, in Meigs county. There are about a dozen houses in the former place and twice that number in the latter. Both are in Columbia township.

There was but one case of typhoid fever in Carpenter; origin not known. Some of the houses were in bad sanitary condition, and about the station there was stagnant water which the rai
look after.

layers with wide cracks between, and water will flow through it as easily as through a sieve. This may be seen at either of the quarries from which the water has been pumped. The surface of the town is flat, and the surface drainage is poorly provided for. Owing to these conditions all filth placed upon the surface or in the thin layer of soil above the rock must be carried to the water vein from which the wells obtain their supply, and with but little purification. The privies are mostly without vaults, although several large uncemented vaults exist near the central part of the village. In many instances the wells and privies are close together—in some cases not more than fifteen or twenty feet apart. Under such conditions the wells could not escape pollution. There are several quarries within village limits, two of which have been abandoned and are full of water. These quarries have been made receptacles for various kinds of filth, including matter from privies. It is possible, with such soil formation, that your wells are more or less contaminated by polluted quarry water. These quarries also furnish ice, and as it is known that the poison of typhoid fever is not destroyed by freezing, it is possible that contaminated ice is chargeable for some of your cases of that disease. Three wells were examined, and I enclose a copy of the chemist's report.

Well No. 1, is the Stillson well on Madison street. Well No 2, is Swan's well on the same street, and well No. 3, is the butchers' well. All of these waters are bad, and these wells should be condemned at once and permanently closed. The chemist says that wells 1 and 3 are the worst he has ever analyzed. Well No. 3, has four privies within twenty feet of it. While these wells are perhaps worse than the average, there is great probability that all of your wells are more or less contaminated and unsafe for use. There can be little doubt that it is the pollution of your wells that causes your typhoid fever, and you may expect this disease to continue year after year unless radical changes are made in your sanitary arrangements.

Your only protection against present danger is to boil all waters to be used for drinking purposes, or which will in any way be taken into the stomach. Your future protection will depend on keeping the soil free from filth. All privies should have a tight receptacle—a box, tub or bucket, above ground, and the free and daily use of dried pulverized earth, and occasionally lime should be required. Other sources of danger such as filth from stables, hog-pens, household garbage, etc , should also be cared for and quickly removed so as to avoid soil pollution.

Your village has issued bonds for a public water supply, and this should be introduced as soon as possible, and all families should be urged to use it in preference to wells; but even then the healthfulness will largely depend upon keeping the soil clean

Respectfully,

EXAMINATION OF WATER FROM WELLS AT GIBSONBURG.

COLUMBUS, OHIO, October 2, 1896.

DR. C. O. PROBST, Secretary of State Board of Health.

MY DEAR SIR: I have made an examination of the three samples of water you sent me with the following results:

Parts per 100,000.

	No. 1.	No. 2.	No. 3.
Oxygen required	0.38	0.18	0.71
Free ammonia	0.093	0.002	0.274
Albuminoid ammonia	0.022	0.014	0.038
Nitrous acid	0.160	trace	0.280
Nitric acid	7.40	10.40	21.60
Chlorine	25.00	10.50	89.40
Total solids	130.40	88.40	228.40
Temporary hardness	46.0	39.0	59.0
Permanent hardness	26.9	8.0	28.4
Loss of weight total solids on ignition	31.0	26.0	58.0

These waters are certainly unusual. Numbers 1 and 3 are without exception the most highly polluted waters I have ever analyzed. They contain large amounts of putrescent organic matter, probably animal in part, as judged from the high chlorine and ammonia as well as oxygen required. The extraordinary amounts of nitric and nitrous acid indicate a soil water highly impregnated with organic matter and *not drained* so that the products of *oxydation continuously concentrate* in the basin, until the water becomes a veritable "niter bed." Well No. 2, while not showing large amounts of actual animal or vegetable matter (low free, albuminoid ammonia and oxygen), shows by the high nitrates and chlorine that it is the same kind of water filtered more carefully but retaining evidence of very heavy past sewage contamination which should condemn it unless there were absolute proof that the filtration would always be equally sufficient.

Yours, very respectfully,

N. W. LORD.

REPORT ON DIPHTHERIA AT GAHANNA.

To the State Board of Health:

GENTLEMEN:

The Mayor of Gahanna, a small village eight miles from Columbus, called at my house Sunday, April 12th, and requested me to come there on account of trouble growing out of a dispute as to the nature of some cases of sore throat they were having.

I drove there next day with Dr. Turney, of Columbus, who was treating one of the cases. I examined his patient, a young married woman, and the disease was undoubtedly diphtheria. The nares had been invaded by the disease, and there was paralysis of some of the muscles of the pharynx and larynx. I learned that she had nursed a child that had membranous croup. The child died in her arms. A child of this [illegible] at the house where the child died, and a week later had [illegible]. The mother, the patient whom I exam- [illegible] disease from her boy.

Another child in the village had recently died of membranous croup. Two of the local physicians maintained that the disease was not diphtheria.

There is no board of health in the village, although formerly one had been organized, and the mayor had been acting as health officer, but without legal authority. On account of the dispute in diagnosis he did not know what to do about quarantine.

There was but one case at the time I was there, but the husband of the patient conducted a meat shop (nursing his wife at night), and many people were exposed. I ordered him confined to the house, and he agreed to remain there. I directed the mayor to establish quarantine in all suspicious cases of sore throat, which he promised to do.

Respectfully,

C. O. PROBST, Secretary.

REPORT ON DIPHTHERIA AT PEMBERVILLE.

To the State Board of Health:

GENTLEMEN:

Pemberville is a village of about 1,200 inhabitants, on the C., H. V. & T. railway, in Wood county.

The health officer, Mr. John Seiler, Jr., has had considerable trouble in enforcing sanitary regulations. Some time ago he attempted to abate a nuisance arising from the drainage of a cemetery in the village. Not being able to get the owners to abate the nuisance he employed teams and men and abated it himself. He attempted to recover the amount expended, in the courts, but on account of some irregularities in his proceedings, due to his ignorance of the law, he was defeated. The board of health gave him little or no support in his suit.

Diphtheria made its appearance in the village, and fearing he would be unable to enforce proper measures to restrict its spread he sent for me. I visited Pemberville May 25th, and learned the following in regard to the outbreak:

The village had been entirely free from the disease for some time, but one of the village physicians was visiting cases in a neighboring town. A young lad who cared for his horses frequently went with him. About twelve days or two weeks before my visit this boy was taken with a sore throat, but he was not much ill and it was not suspected that his disease was diphtheria.

Some days later another boy in the family was taken with sore throat, and about the same time a young girl of nine or ten, a sister.

Previous to the occurrence of these last two cases, a minister and his wife, living across the street from this family, went to Cleve-
the Methodist conference, and left in t

about two years. The child was taken home soon after the cases of diphtheria developed, but was itself taken with the disease and died while I was there.

A doubt was expressed by some persons as to the disease being diphtheria. I examined the cases and think there is no doubt that they were of this character. So much for the origin.

As to preventive measures—nothing was being left undone, and I wish to commend the health officer, who is not a physician, for the thorough manner in which he was enforcing measures to prevent spread of the disease. The two houses containing cases were being guarded day and night. All their provisions and other supplies were brought to them. Ropes were stretched across the street cutting off all travel past the houses. (This was perhaps unnecessary, but was a good object lesson.) Eleven persons, some of them adults, who had been exposed to the disease were quarantined in their homes. The attending physicians were making a complete change of outer clothing each time they visited a patient. Disinfection of the discharges was looked after by the attending physicians. A nurse to assist the minister's family was secured by the health officer while I was there.

I had few suggestions to make, and upheld the health officer in all he had done. As he had acted on his own responsibility, however, the board of health not having had a meeting since last September, I advised him to call a meeting at once to approve of what had been done. I talked with several members of the board and with some of the influential citizens to make sure that such approval would be given.

The health officer reports to me on June 13th that one case has occurred since my visit.

This is an example of what may be done in the prevention of diphtheria which, one could wish, were generally followed throughout the state.

Respectfully,

C. O. PROBST, Secretary.

REPORT ON DIPHTHERIA AT PIQUA.

To the State Board of Health:

GENTLEMEN:

October 24th I was called to Piqua by the board of health on account of the prevalence of diphtheria. This disease had been prevailing there for some time prior to my visit, and there was a tendency for it to become epidemic. There were thirteen cases present the day I was there. The health officer reported to the State Board that from January 1, 1896, to October 31, 1896, seventy-six cases and five deaths from diphtheria occurred in Piqua. From October 31st to November 28th he has reported twenty-eight cases and two deaths from this disease. There had been considerable carelessness in regard to enforcing quarantine. A few days before my visit a physician was arrested for failing to report a case of

prevailing winds and prevailing currents will nearly always carry sewage flushed into the river to the east; but this does not always occur, and there remains this danger, unusual it is true, of the sewage being poured into the lake when currents are westward, and this danger should be guarded against as far as possible.

I am clearly of the opinion that the water should be filtered to render it perfectly safe at all times, but do not believe it would be wise to impose this condition at the present time; especially so when we consider the experiments being made with mechanical filters at Louisville, Kentucky., and the experiment, we may call it, which will soon be made with such a filter at Lorain. Under the provisions of the company's charter they are permitted to furnish water from filtering galleries "and the shores of Lake Erie." The proposed change—to obtain water 2,500 feet from the shore—will certainly better the present supply.

I would therefore recommend that the proposed plans for obtaining an additional water supply be approved, subject to the condition that the Ashtabula Water Company agrees to filter its water supply, in a manner satisfactory to the State Board of Health, whenever it shall be found and declared necessary by said Board.

Respectfully,
C. O. PROBST, Secretary.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY.
COLUMBUS, July 14, 1896.

MR. G. D. L'HUILIER, Receiver, Ashtabula Water Company, New York City:

DEAR SIR: I enclose herewith a copy of the report on Ashtabula Water Supply. Please note the conditions upon which your plans will be approved and inform me whether you will agree to these conditions.

I have heard from the members of the Board and your plans have been approved subject to conditions named. Awaiting your reply, I am,

Yours truly,
C. O. PROBST, Secretary.

REPORT ON PROPOSED EXTENSION OF WATER SUPPLY FOR BUCYRUS.

At a meeting of the State Board of Health held in Cincinnati, April 23, 1896, the following statement was presented in connection with the request for approval of the proposed extension of the water supply of Bucyrus:

"We propose to make an extension and enlargement of our present water supply at Bucyrus, O., as follows:

"We will take the water from the Sandusky river when it is clearest, and pump it with a 3,000,000 gallon pump to a reservoir about three-quarters of a mile north of the present pumping station; said reservoir will have an estimated capacity of 81,000,000 gallons. The elevation of the high water mark in the reservoir will be about forty-two feet above the bottom of the river. The reservoir is proposed to be circular, with a diameter of 1,294 feet at the inside and top of the embankment. The inside slope being two to one paved with rip-rap stone pavement, the outside slope being one and one-half to one. The soil on the entire site to the outside slopes of the embankment will have an average depth of eight and one-half feet, and the embankment will have an average depth of twelve feet. A gate house will be provided with valves at various depths to permit us taking water from the clearest points.

"The water after storage is to be filtered through the Hyatt filters now in existence in our works, and which have a rated capacity of 750,000 gallons per day. Our present consumption is from 300,000 to 400,000 gallons per day with a maximum summer consumption of about 650,000 gallons per day. The quantity consumed is being reduced by the addition of meters placed on the supply pipes of the consumers. By way of explanation we might say that last year we placed between forty and fifty new meters, reducing the pumping for the succeeding year about 15,000,000 gallons. It is the policy of the company to add meters from time to time to prevent waste, and keep the consumption down to its legitimate use, hoping by this policy that the additional customers will not increase the present consumption materially.

"We shall probably have the reservoir pipe connected directly to the filters, allowing the water filtered by gravity from the reservoir to flow into a large cistern which is to be formed by altering the old well for that purpose. The present arrangement of pipes between the existing service pumps and the filter will remain the same, so that all the new work proposed will be entirely additional to what is now in existence and in operation.

"The new work proposed will affect the present supply in that we will have ample quantity and we will improve the quality by allowing sedimentation to take place in the storage reservoir.

"The reservoir will be built and owned by the Bucyrus Reservoir Company, a separate organization from the Bucyrus Water Company. The Water Company will arrange with the Reservoir Company for a supply of water. With this statement we submit a copy of the specifications under which the reservoir is to be built, and we will supply you with whatever drawings and maps you may need.

Very respectfully,

THE BUCYRUS WATER COMPANY,

GEO. L. WELLS, Engineer,

FRANK A. KALER, Superintendent.

On motion of Dr. Hoover the Secretary was appointed to make an investigation of the degree of purification of water that can be effected by the Hyatt filters now in use in Bucyrus, bacteriological tests to be made by the company by a bacteriologist satisfactory to the Board, approval of the supply to depend on the results of such tests.

REPORT ON PROPOSED WATER SUPPLY FOR CAMBRIDGE.

To the State Board of Health:

GENTLEMEN:

The city of Cambridge more than a year ago voted to construct water works, and $60,000 worth of bonds were sold for that purpose. The question of obtaining a supply of water was given to a committee of council, and Mr. E. C. Cook of Cleveland was retained as engineer.

A number of wells were bored and, in August, 1895, at the request of the mayor and council I visited Cambridge for the purpose of obtaining information to enable the Board to act upon the application for approval of the supply. On concluding this investigation I advised the council to make pumping tests to determine the quantity of water available, before going further in the matter. A few conclusive tests were made, but later a board of water works trustees was created, and this board proceeded to make a thorough test of the wells under the direction of the engineer. Thirteen wells were put down by the city in search of water, and two additional wells were put down by the ice company. A comparatively small quantity of water was found. Five wells, pumped together by means of an air lift pump, after some hours, yielded but thirty-five gallons a minute. Deep wells, which have been bored to 2,000 feet for oil and gas, find plenty of salt water at 1,200 to 1,400 feet, but not enough water to drill with below that point.

It is apparently hopeless to expect to find a ground water supply for Cambridge.

At the request of the water works trustees I visited Cambridge again April 20, 1896. The trustees have now decided to use the water of Wills creek, a comparatively small stream but about 250 miles long, which flows through the city. The stream is dammed at several points within city limits. It is proposed to establish the intake at a point just above where Leatherwood creek empties into Wills creek. This is outside of and considerably above the city. A low dam will be built in the creek which will slightly increase the storage of water and which will cut off back flow from below. Water is to be pumped to a stand pipe on a hill, with provi- -avity pressure. About eleven miles of mai- -ds for the work having been advertised

The stream, when I saw it, was very muddy and in spite of the fact that the last rainfall had been nine days before. This seems to be due to fine particles of clay which settle slowly. There is no sewage cast into the stream above the proposed intake, but Dayton and Byesville, small mining towns, are on the stream six or eight miles above. The drainage from several coal mines enters the stream above the intake.

It is not proposed to use the water for domestic purposes until provision has been made for filtering it. Inside house connections will not be permitted. The city is badly in need of fire protection, and there seems to be no other available water supply.

I desire to recommend the approval of the proposed supply subject to the condition that it shall not be used nor be made available for domestic purposes until it has been purified by filtration in a manner satisfactory to the State Board of Health.

The trustees wish to know whether the Board will approve purification of the supply by mechanical filtration.

Respectfully,

C. O. PROBST, Secretary.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, April 25, 1896.

TO THE BOARD OF WATER WORKS TRUSTEES, Cambridge, Ohio:

DEAR SIRS: The State Board of Health has considered your application to approve the water supply proposed for your city, to be obtained from Wills Creek at a point just above where Leatherwood creek empties into it, and the supply has been approved subject to the following conditions: That it shall not be used or made available for domestic purposes until it has been purified by filtration in a manner satisfactory to the State Board of Health.

Please notify me at once whether you accept these conditions.

Respectfully,

C. O. PROBST, Secretary.

CAMBRIDGE, OHIO, May 1, 1896.

DR. C. O. PROBST, Secretary of State Board of Health, Columbus, O.:

DEAR SIR: The Board of Water Works Trustees accepts the conditions of your permit of April 25th, to build a system of waterworks for fire and mechanical purposes, and contemplate putting in a system of mechanical filters for domestic purposes subject to the approval of your Honorable Board.

Any suggestions or information in regard to the best process of filtration will be greatly appreciated.

Thanking you for your kindness we are,

Very truly yours,

W. V. GARVIN, Secretary.

company has made very great efforts to secure a further supply from the valley in which the works are located, but without success. In this extremity the experiment of one deep trial well was made, and the success is sufficiently interesting to demand this partial report.

This deep well is located perhaps sixty feet east of the boiler-house and thirty-five feet north of the central well. Its depth is 225 feet, though the water supply comes from a point between 225 and 230 feet below the surface of the ground. This supply is under such pressure that an artesian flow was at once secured and this has continued for a number of weeks at this writing, rather increasing in force all the time. The well is six inches in diameter and the flow is fully equal to a three-inch stream. The geological section is a very interesting one. First, twenty feet of sand and gravel forming the glacial drift. This was followed by eighty feet of limestone without any particular change in color or texture throughout the whole series. Beginning with the Hamilton group as the surface rock, the entire series would include the Delhi and the Delaware limestones, together with the lower members of the corniferous group. The reported thickness agrees with the determination of these rocks as made by the State Geologist, Dr. Edward Orton. He estimates the thickness at seventy-five feet. Below the limestones, the well was carried through a rock of a red and brown tint for ninety feet. This is undoubtedly the "waterlime" of the American geologists. It is a confirmation of this view that small quantities of gas were encountered; also that the drill cut through a number of layers of asphalt and of amorphous carbonaceous matters. Below 190 feet the drill penetrated a series of thin-bedded sand, impure limestone and shales. These all belong to the waterlime, as that rock is noted, especially in Ohio, for the irregular composition and bedding of its several layers. As before stated, it was when the drill reached 225 to 230 feet that the strong stream of water was found. The water is cool, perfectly clear and very pleasant to the taste. It has not yet been submitted to analysis. The question of the quantity of the water in such wells is a most important one. The very able superintendent of the Delaware water works, Colonel C. W. Wiles, while experimenting upon the flow of water, observed marked increase in the rate when a short section of pipe—twenty-seven inches in length—was removed from the top of the well. With this as a hint he has procured an "Ingersoll and Sargent Compressing Engine" and has installed the same. By means of a pipe one and one-half inches in diameter he carries a current of air down 144 feet under a starting pressure sixty pounds and a constant pressure of forty pounds. Within a few seconds after the pressure is turned into the well, the water rushes out of the mouth of the well, in a stream at least six inches in diameter and a measured rate of not less than 500,000 gallons in twenty-four hours. Connection has been made with the trial well, already referred to, which is filled in.

to the continued rains of the months of May and June (1896) and the remarkably cool weather the pumping demand is less than 310,000 gallons a day. It follows that this one well, assisted by the Ingersoll and Sargent compressed air engine, will provide all the water now demanded by the city of Delaware. The longest test thus far made was two hours. The flow was uniform and strong. No indication of overpumping noticed. At one of these experimental tests it required but a few seconds to bring about the increased flow, but it took the well thirty-five minutes, after the air pressure was turned off; to drop down to its normal artesian rate. Another point attfacted my particular notice. The compressed air, released at a depth of 144 feet, at once rises with the water, completely aerating it. It falls into the central well with such force and volume that the whole body of water is disturbed, the current of falling water being carried several feet below the surface. If there is any sanitary value in exposing organic matter to the atmosphere, if oxidation is one of nature's methods of destroying injurious elements and compounds, certainly it may be tested here to perfect advantage.

We have already seen in this report that the water comes from a point 225 feet below the surface and that it exists there under a sufficient head to lift it to the surface of the ground. Whence the head? Not from any point within Delaware county, for though the site of the city of Delaware is not the highest within the county, the difference is not enough to account for the hydrostatic pressure. The following figures representing elevations in the county are from the surveys of the C. C. C. & St. L. Railway.

	Above Sea Level.
Morrow county line	970 feet.
Ashley	977
Eden	970
Delaware	943
Berlin	946
Lewis Center	952

It will be noticed that Delaware is in a slight depression and that the land rises both to the north and to the south. Towards the south, however, the rise is but a few feet and is soon overcome. To the north the increased elevation is maintained as far as the great divide between Lake Erie and the Ohio river which reaches its highest point at Mansfield and Crestline. The difference in elevation between Delaware and the top of the divide is fully *two hundred and fifty feet.* Whether the source of the new water supply is this high land in Ohio, or whether like the spring water of Mansfield, it must have a source still higher and at a further distance, are questions for continued investigation. Under all the circumstances I commend the use of this new water supply for the city of Delaware.

Respectfully,

E. T. NELSON.

REQUEST FOR APPROVAL OF WATER WORKS FOR ELYRIA,

ELYRIA, OHIO, June 17, 1896.

To the State Board of Health:

DEAR SIRS: On behalf of the city of Elyria, we desire to present to you for your consideration, suggestions or approval, the plat and description of the proposed intake for the new water supply of the city of Elyria.

The general scheme consists in taking water from Lake Erie by means of a submerged crib and 1,500 feet of twenty-four-inch cast iron influent pipe, delivering the water into a pump well located within the pumping station, and taking suction from this pump well and forcing the water through a 24-inch force main to the distribution and standpipe in the city of Elyria, a distance approximately of eight miles.

In the consideration of the intake for this proposed water supply we have desired to keep as far away as possible from the mouth of Black River, and also from the mouth of Beaver Creek, a stream through the shale formation, which empties into Lake Erie about four miles west of Black River. Keeping away from the mouth of Black River on account of the possibility of sewage contamination from this stream, and also from the mouth of the Beaver Creek on account of the extreme roiliness of this stream during times of excessive rainfall. Both the Black River and Beaver Creek passing through the shale formation carry down in time of freshets large amounts of finely disintegrated shale, a material in our opinion extremely hard to handle by filtration when the water contains a large proportion of such shale. Samples of the water in the Black River have been taken during a time of freshet when the precipitated shale from the sample would be deposited to a depth of two and one-half inches in a bottle fourteen inches in height, and the same result would no doubt be true of the water of the Beaver Creek.

Soundings have been taken on two locations, the one known as the Wallace farm the the other farm known as the Lane farm; which locations are approximately 1,000 feet apart. At each place it is possible to obtain a depth of some twenty feet of water at a distance of 1,500 feet from the shore line.

A study of the currents of Lake Erie at these points, and also from information had from fishermen and residents in this vicinity, lead us to believe that the almost universal trend of the current is from the west to the east, justifying the conclusion that the water from these intakes could not be contaminated with sewage from the Black River, and in our opinion taking everything into consideration, we feel that one of these two locations would furnish an acceptable and desir
for the city of Elyria.

We present with this communication a plat showing the shore line of Lake Erie in this vicinity, and also a profile of the lake bottom at the proposed points of intake.

Respectfully submitted on behalf of the city of Elyria,

F. S. REEFY, President of the Board of Health.
M. H. LEVAGOOD, Mayor.
L. E. CHAPIN, Consulting Engineer.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, JUNE 19th, 1896.

Messrs. M. H. LEVAGOOD, Mayor, F. R. REEFY, President of Board of Health, L. E. CHAPIN, Consulting Engineer, Elyria, Ohio:

DEAR SIRS: Your application for approval of a public water supply for the city of Elyria, to be obtained from Lake Erie by means of a submerged crib fifteen hundred feet from shore line and about two miles west of the mouth of the Black river, was considered by the State Board of Health at a meeting held June 18, 1896.

It was voted to approve the proposed supply; but the Board wishes to express the opinion that too much confidence should not be placed in the currents of Lake Erie as a means of protecting the proposed supply at all times against sewage from Elyria and Lorain, carried into Lake Erie by Black river It has been demonstrated in several lake cities that sewage is at times carried much farther than two miles in a direction contrary to usual currents.

It is therefore recommended that land be acquired at once, sufficient and suitable for sand filtration of the water supply, and that arrangements be made for filtration at the earliest practicable date.

Respectfully,

C. O. PROBST,
Secretary.

REPORT ON PROPOSED WATER SUPPLY FOR GREENWICH.

To the State Board of Health·

GENTLEMEN.

On Friday, March 6, 1896 I received two telegrams from the Secretary of the Board in regard to a visit to Greenwich, Huron county, Ohio where the corporation is expecting to introduce a public water supply in the near future. This town with perhaps a population of one thousand, lies on the Cleveland division of the C. C. C. & St. L. R. R.

The town site is sufficiently rolling to give fair surface drainage, and to allow for a sewer system with a satisfactory outlet whenever the same shall be projected. At present, the problems of a public water supply and an electric light plant are absorbing all thought and energy. The conditions are about as follows:

All of this portion of Ohio has a glacial soil known as the "boulder y." At Greenwich, this soil is fourteen or more feet in thickness, is nd fine grained. Underneath this in many places, if not

throughout the county, there is a bed of quicksand graduating into common sand and gravel. Naturally this sand-bed is water bearing. One very remarkable peculiarity of the sand bed from which the public water is to be drawn, is that while five to seven feet in thickness it is not over one hundred and fifty feet in width. It can be traced for many miles at about the same distance below the surface when measured as a level. The general direction is from northwest to southeast. This peculiarity will be understood when we remember that all the soil has been transported from some other locality. The movement must have been a surface one, the soil, sand and other matters being pushed *ahead* of the great moving ice sheet. If the glacier came from the north-east, the sand moraine would take the direction just stated. There is much reason for thinking that the stone, which forms the foundation for the soil and sand layers, was deeply eroded before the glacial disturbance. If this be true, the sand might be deposited in one of these pre-glacial water courses. Whatever be the geological explanation, the fact to be considered is a deposit of sand five to seven feet deep, one hundred and fifty feet wide extending in a general north-west to south-east direction and everywhere covered by a compact boulder clay. Within the limits of the town of Greenwich, three or more springs break out at the edge of this sand moraine, and a dozen other springs are known within a distance of one or two miles. These springs never run dry even in the very dryest weather. Not a single one is known to have failed during the past summer. The corporation has put one "driven well" as a test on a piece of ground outside of the town but near the residence of Doctor Reynolds. The water seems abundant, but no such test has yet been made as will settle that question. A well, on the same street and less than five hundred feet distant, was pumped by a fire engine continuously for some hours without lowering the supply.

An engineer of Chicago, Mr. B. J. Ashley, has been employed to prepare plans. The plans are not as yet completed but they contemplate a stand pipe one hundred and twenty-five feet high and ten to twelve feet in diameter. Two miles of mains ranging from eight inches to four. The engine to be used also in the production of electricity for lighting the town.

The question has been voted upon by the people and carried *eleven to one*. A sample of the water will be sent at once to Prof. C. C. Howard for examination. Pending that report, I can commend the water supply and shall so recommend to the Board, if the chemical analysis is satisfactory.

Following is a copy of the sanitary analysis :

COLUMBUS, O., March 19, 1896.

DR. C. O. PROBST, Secretary State Board of Health.

DEAR SIR: The sample of water sent by Prof. Nelson from Greenwich has been submitted to a sanitary analysis with the following results :

	Parts per 100.000.
Appearance—	
Turbidity	none
Sediment	very slight
Color	.0
Oxygen required	.14
Free ammonia	.0098
Albuminoid ammonia	.0102
Nitrogen as nitrites	.0005
Nitrogen as nitrates	.1041
Chlorine	3.25
Total solids	66.3
Temporary hardness	18.1
Permanent hardness	31.5

In this sample a knowledge of the source and surroundings would be of great great aid in forming an opinion as to its quality. The free ammonia, nitrates and chlorine, while not as high as frequently found in polluted waters, are sufficiently so to make profitable careful inquiry on these points. The large amount of solid matter and particularly the extreme permanent hardness render it not an ideal water.

Yours truly,

CURTIS C. HOWARD.

Respectfully,
E. T. NELSON, Committee.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY.
COLUMBUS, March 27, 1896.

MR. W. B. BURT, Mayor, Greenwich, Ohio.

DEAR SIR: The State Board of Health has caused an examination to be made of the plans and location of water works proposed for your village; and you are hereby notified that said plans and location have been approved.

I enclose a copy of the chemist's report on the examination of a sample of the proposed supply.

Yours truly,

C. O. PROBST, Secretary.

PURIFICATION OF THE WATER SUPPLY OF LORAIN.

In 1895 the Water Works Board of Lorain made application to the State Board of Health to approve a change in the source of water supply of that city. The change consisted simply in the extension of the intake pipe a short distance further into Lake Erie. After an investigation the Board reported that its approval would be withheld as it was not satisfied that the proposed lake intake would be sufficiently removed from the mouth of Black river to avoid sewage contamination. Mr. George W.

Rafter, civil engineer, was employed by the Water Works Board to report upon the change in the water supply of Lorain and he recommended that the intake crib should be extended about two miles, and as a further precaution that the water should be filtered.

Following is a communication from the Water Works Board requesting approval of the purification of the water supply of Lorain by mechanical filtration, with a copy of the agreement entered into between the Water Works Board and the O. H. Jewell Filter Company and the reply made to said request:

LORAIN, O., June 23, 1896.

DR. C. O. PROBST, Columbus, Ohio.

DEAR SIR: On behalf of the Board of Water Works Trustees I write to ask permission of the State Board of Health for using the O. H. Jewell mechanical filter for purifying the water supply for the city. If you need drawings and description of same kindly advise and oblige,

H. J. BARROWS,
President, Water Works Trustees.

CHICAGO, ILL., May 1, 1896.

TO THE MAYOR AND BOARD OF WATER COMMISSIONERS, Lorain, Ohio.

GENTLEMEN: We propose to furnish and erect for you upon your foundations and in your building, a complete Jewell gravity filter plant consisting of six (6) gravity filters, with filter beds 17 feet in diameter by 4 feet deep of silica sand, contained in clear seasoned cypress tanks of 3 inch dressed material, 14 feet high and having within themselves settling chambers of 60 gallons total capacity.

We guarantee said filter plant, when operated in accordance with our usual instructions, shall have a capacity of purifying an average daily amount of 3,000,000 gallons of water taken from your intake in Lake Erie, so that the same shall be clear and bright, free from suspended matter and suitable for domestic use. We further guarantee that the filters shall make an average reduction of not less than 97 per cent of the bacteria in the unfiltered water (it is understood that our guarantee is being fulfilled satisfactorily whenever the number of bacteria in one cubic centimeter of the filtrate does not exceed the recognized limit of safety, which is 200 bacteria per cubic centimeter).

Our proposition includes the furnishing and connecting up by us of all pipes, valves, shafting, belting, and pulleys in the filter house, and complete working drawings, plans and specifications for the filter house; which plans, specifications and drawings are to be attached hereto and made a part of this contract, marked "exhibit A," also the furnishing and erecting by us of a 10-horse power engine on your foundations and the connecting up of all valves, steam and exhaust pipes of the same within the filter house; also a steam sterilizing device for each filter, by means of which the filter beds can be boiled and sterilized if desired; also with each filter, our new automatic controller, regulating

the output of the filters to a constant and uniform delivery, irrespective of whether the beds are newly washed or not; also two cypress tanks 8x12 feet for coagulants, with all connecting pipes, with pump for delivering and regulating the supply of the solution of sulphate aluminia to the unfiltered water; none of which aluminia shall appear in the filtered water; you to furnish and use said sulphate of aluminia when necessary to obtain the above guaranteed standard of purity. We also guarantee that the material and workmanship of the above filter plant shall be first-class in every respect and agree to replace without cost any part thereof that may prove defective within one year from erection.

The price to be paid for above to be ....., as follows:

..... on delivery at Lorain of all materials for said filter plant except the silica beds, which on account of bulkiness cannot well arrive until the erection of the filters ready to receive them; ..... on erection of the filters ready for operation; and ... . six months after completion and starting up of plant, provided the above guarantees have meantime been fulfilled by us. All experiments to determine the average bacteriological reductions effected by the filters shall be conducted at your expense, at or near the filter plant, and the bacteriologist employed by you shall be a man of recognized integrity and skill in his work. If a question arise between us as to his integrity or skill, we agree to submit the matter to the arbitration of Mr. A. J. Moxham, President of the Johnson Company.

If the above proposition meets with your favorable consideration and acceptance, we will at once visit Lorain with our draughtsman and prepare plans without delay, and will have the filters at Lorain ready for erection as soon as foundations are ready.

Yours respectfully,

O. H. JEWELL FILTER CO.,
O. H. JEWELL, President.

WM. M. JEWELL, Sec'y-Treas.

In case the above proposition is accepted, I hereby guarantee the performance of the undertakings of the O. H. Jewell Filter Co., therein contained, including all guarantees and also in case of failure of said Jewell Company to make good their guarantee, upon due notice, to refund any payments that may have been made to them on account of said contract, and to remove from Lorain all of said filter plant furnished by said Jewell Filter Company.

QUINCY, ILL., May 1, 1896.

W. B. BULL.

LORAIN, OHIO, May, 1896.

We, the undersigned citizens of Lorain, in consideration of work being begun by the O. H. Jewell Filter Company, upon the construction

of the above named filter plant without delay, do guarantee that the Board of Water Works Trustees of Lorain will, on or before July 1, 1896, accept the above proposition.

(Signed) H. J. BARROWS,
M. H. LAMPMAN,
W. W. WHITEHOUSE,
E. M. PIERCE,
E. BRUELL,
E. A. BRAUN,
JOHN STARRY,
C. WIEGAND,
F. C. ARNOLD.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, July 22, 1896.

MR. H. J. BARROWS, President, Water Works Trustees, Lorain, Ohio:

DEAR SIR:—Your application for approval of a proposed change in the water supply of Lorain, viz.: purification of the present supply by mechanical filtration, using a Jewell gravity filter, has been considered by the State Board of Health.

The Board, while hoping that mechanical filtration will afford a satisfactory method for purifying polluted waters, does not consider the experiments heretofore made conclusive as regards the efficiency of such filters in *continuously* removing pathogenic or other bacteria.

The Board, however, approves of your proposal to make a six months' trial of the Jewell filter, but suggests the following change in your contract with the Jewell Filter Company, if possible, viz.: That the filters shall be deemed satisfactory as regards bacteriological reductions provided the experiments with the Jewell filter, now being conducted at Louisville, Ky., under the supervision of Mr. Geo. W. Fuller, show for six months a daily average reduction of not less than 97 per cent. of the bacteria in the unfiltered water.

This change is suggested for the reason that it is believed that a more satisfactory trial is being made at Louisville than will probably be made at Lorain, considering the expense involved. The Board recognizes that different waters present different problems in filtration, and that it would be very much better for Lorain to have the bacteriological tests apply to lake water; but unless this is done in the most thorough manner, and the effluent is examined several times daily, the test will not be conclusive. A filter must be continuously efficient to protect against disease, and *averages*, unless they are made up from a large number of experiments repeated at short intervals, may be very misleading. If an examination, as outlined above, is contemplated at Lorain, the suggestion as to change in contract is withdrawn.

Respectfully,

C. O. PROBST,
Secretary.

REPORT ON PROPOSED WATER SUPPLY FOR LOVELAND.

To the State Board of Health:

GENTLEMEN:

Having been appointed by the president to make an inspection of a proposed water supply for Loveland, Ohio, I visited that place April 2, 1896, in company with Mr. E. F. Layman, of Cincinnati, engineer of the proposed water works, and respectfully present the following report:

Loveland is a town of about one thousand inhabitants on the Little Miami River. The plan now contemplated is to take the water from the Little Miami, without purification if that will meet with the approval of the State Board of Health. The river would yield an abundant supply at all times of the year, but, in my opinion, it would be of questionable character, especially in the summer when the river is low and the proportional contamination much greater.

The Little Miami is subject to many sources of pollution. It flows through miles of country largely devoted to grazing; along its banks are several towns and villages in which are manufacturing establishments that discharge their waste materials into the river; it receives the sewage of Xenia, forty-three miles above. These sources of pollution will undoubtedly increase each year. That the amount of contamination of the Little Miami is now so great as to render the water unfit for domestic uses, is shown by chemical analyses made at different times and by different persons of the water taken from the Ohio River above and below the mouth of the Little Miami. Although the volume of water in the Miami is very small as compared with the Ohio, chemical analyses show that there is such a noticeable addition to the amount of organic pollution of the Ohio by the Little Miami that the water of the latter stream at low stages must far exceed the limit of safety.

At the time of my inspection the river was unusually high and a chemical analysis of water taken at that stage of the river would not give reliable indication of the purity of the water at ordinary stages. No water was, therefore, taken for analysis. To reach a correct conclusion in regard to the purity of the water from such a source, chemical and biological examinations should be made when the river is at its lowest stage and the amount of organic pollution proportionally the greatest. As such a condition will probably not be present for several months, we can now be guided only by our knowledge of the stream in past seasons and our knowledge of the various sources of contamination to which it is subjected.

I would recommend that this source of supply be disapproved except upon condition that some process of purification shall be adopted that will be satisfactory to our Board.

Another possible source of supply has received some consideration on the part of the water works board, that is from drilled or driven wells. No tests have, as yet, been made, but they are in contemplation should the river not be approved as a source of supply.

Respectfully,

BYRON STANTON, Committee.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY.
COLUMBUS, April 25, 1896.

MR. E. F. LAYMAN, Civil Engineer, Cincinnati, Ohio:

DEAR SIR: The State Board of Health has considered your application, on behalf of the authorities of the village of Loveland to approve the water supply proposed for that village. The supply has been disapproved except upon condition that some process of purification shall be adopted that will be satisfactory to the State Board of Health.

Respectfully,

C. O. PROBST.
Secretary.

REPORT ON PROPOSED WATER SUPPLY FOR LYNCHBURG.

To the State Board of Health:

GENTLEMEN:

I have the honor to present the following report of an inspection made on March 18, 1896, of a proposed source of water supply for Lynchburg, a town of about one thousand inhabitants in Highland county, on the Hillsboro branch of the B. & O. S. W. Ry.

It is proposed to take the water from a large well in the north part of the town, to be sunk about sixteen feet in a stratum of gravel bearing considerable water even in dry seasons. Overlaying the stratum of gravel is a stratum of clay which, at the well, is four feet thick, but which crops out in a ravine a few feet north of the well. In this ravine is a stream of water flowing from the direction of the town, which discharges into the east fork of the Little Miami river. As the water from the ravine might, on account of the gravelly nature of the soil, find its way into the well, it is proposed to lay a sewer with cemented joints through the ravine and fill it up so as to remove this possible source of contamination. Immediately south of the well are some barnyards, but these are on ground that is to be condemned for water-works purposes, so that any danger from this source will be removed.

Two hundred feet north of the well is Freiberg & Workum's distillery. The cattle pens of the distillery are north of the distillery buildings and are at least one-thousand feet from the well, are on lower ground and are near the east fork of the Little Miami river, into which the surface drainage runs, so that I think there can be no danger of contamination from this source.

About three-hundred feet east of the well is a cemetery of about two acres. It has been long in use but it is to be abandoned, a new one having been opened some distance from the town. The soil at the cemetery is clay to a depth greater than any of the graves and the drainage of the cemetery is in a direction away from the well, so that no danger is apprehended from this source by the citizens, or by the engineer, Mr. E. F. Layman, of Cincinnati.

Aside from the demand for a greater supply of water for fire purposes, there is need of a public source of supply for domestic uses. In the south part of the town the wells frequently fail and some families have to depend upon distant wells for their supply.

The proposed well promises the greatest yield of any source yet found although numerous test wells have been sunk.

The report of Prof. C. C. Howard of a chemical analysis of the water accompanies this. As the report says, "The water seems to be one of considerable purity." While the amount of chlorine is high, this may be of mineral origin and hence without significance. The low oxygen required and the ammonias would indicate that there has been no recent pollution of the water.

As the danger of surface contamination can be removed by removal of the barnyards and by properly sewering and filling the ravine near the well, I believe this can be made a safe source of supply and I would recommend its approval on condition that the water-works authorities shall remove the sources of possible danger here pointed out.

COLUMBUS, O., March 20, 1896.

DR. C. O. PROBST, Secretary State Board of Health:

DEAR SIR: The sample of water forwarded by Dr. Stanton from Lynchburg has been examined by myself with the following results.

Parts per 100.000.

Oxygen required	.072
Free ammonia	.0012
Aluminoid ammonia	.0096
Nitrogen as nitrites	.0005
Nitrogen as nitrates	.0647
Chlorine	6.46
Total solids	68.9
Turbidity	none.
Sediment	very slight.
Color	.0
Permanent hardness	38.2
Temporary hardness	14.3

No information as to the source of this water is at hand, and the following is based on these figures alone. The water seems to be one of considerable purity. The large amount of solid matter would indicate that it is from lower strata, and while the chlorine would be objectionable in a shallow well, if it did arise from animal excreta, the ammonias and oxidizable matter would be higher.

Yours truly,

CURTIS C. HOWARD.

COLUMBUS, O, March 26, 1896.

DR. B. STANTON, Cincinnati, Ohio:

DEAR SIR: Your letter of March 21st, received and answer delayed unavoidably. Your full description of the surroundings has been noted. The low oxygen required and ammonias show that there is no recent pollution of the water. The high chlorides may remain from a former contamination or they may be of mineral origin and hence without significance. The nitrogen in nitrites and nitrates, which is rather high, has doubtless at some past time existed in the tissues of plants or animals. Whether this time is so recent as to make it a mark of suspicion, or so remote as to be without meaning requires outside data for confirmation. As stated in the former letter, this water has the appearance of one from lower strata, in which case it would be difficult to object to it on these figures. If from a well twelve feet deep, I must still insist that it has not been exposed to a recent contamination, but the inferences drawn from the high chlorides and nitrites and nitrates would be somewhat modified. Even at twelve feet the water may come from lower strata, but if not explanation of the high chlorides is in order, and the high nitrites and nitrates throw a shadow of suspicion over the water. The water is an excellent illustration of one requiring the fullest study to arrive at a reliable opinion.

Yours truly,

CURTIS C. HOWARD.

Respectfully,

BYRON STANTON, Committee.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY.
COLUMBUS, April 1, 1896.

MR. THOMAS MONTGOMERY, Village Clerk, Lynchburg, Ohio:

DEAR SIR: The State Board of Health has caused an examination to be made of the proposed water supply for the village of Lynchburg, to be obtained from a large well, sixteen feet deep, to be situated in the north part of the village, and you are hereby notified that the same has been approved, subject to the following conditions, to-wit:

First—That a ravine passing near the well, and discharging into the east part of the Little Miami river, be filled up, after placing in said ravine a carefully laid sewer with cemented joints.

Second—That barnyards and other sources of pollution south of, and in the vicinity of the well, be removed.

Third—That these conditions be complied with before the water supply is allowed to be used for domestic purposes.

I enclose herewith a copy of the report of the committee, and of the chemist.

Yours truly,

C. O. PROBST,
Secretary.

REPORT OF AN INSPECTION OF THE PUBLIC WATER SUPPLY OF MARION.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY.
COLUMBUS, October 12, 1896.

TO THE BOARD OF HEALTH, Marion, Ohio:

DEAR SIRS: The letter of your secretary, Dr. E. H. Raffensperger, under date of October, 7, 1896, enc'osing a copy of a resolution adopted by your board, requesting the State Board of Health to inspect the public water supply of your city, was duly received, and the committee beg leave to submit the following report of their inspection.

We visited Marion on the 9th instant, and through the courtesy of members of your board which we gratefully acknowledge, were enabled to inspect the water supply without loss of time. We learned that a water works company is furnishing the supply and is under an agreement to furnish the city with "a good, potable supply." Water is obtained from the ground by the excavation of a comparatively long and narrow basin or reservoir with a channel 20 to 25 feet wide leading from this basin to a pump well from which the water is taken. There is a copper screen in the pump well for removing leaves and other large floating objects.

The water comes from a sandy gravelly soil, which has, except during the drought of last season furnished sufficient water for all purposes. The maximum consumption is placed by the engineer at 600,000 gallons per day.

The basin from which water is contained is in a field about three miles from the central part of the city, and is far removed from unavoidable sources of contamination. Great carelessness exists, however, in regard to local and easily controlled conditions, which have rendered the water impure and unfit for use. The basin contains an abundant crop of grasses and weeds which, by their decay are adding a considerable amount of organic matter to the water. The same is true of the sloping sides of the basin, which are of natural earth.

The pump house and well are in a field separated from the field containing the basin or reservoir by a wire fence, but this fence is broken, so that the cows and horses, which are pastured in the pump house field, have free access to the reservoir. Evidence of this was found on all sides from the manure which plentifully sprinkled the banks of the reservoir into which rains would wash it; in several places manure was actually

found at the water's edge. We consider that under these conditions the water is far from being a "good potable supply," and steps should be taken at once to compel the water works company to correct these abuses.

Near the pump house are ten drilled wells, varying in depth from 100 to 200 feet. During a part of last summer when the supply in the basin failed, one of these wells by pumping furnished most of the city's entire supply, and for a period of about forty days steady pumping at this rate lowered the water in this well only three feet.

The location of these wells gives every reason to believe that they will furnish very pure water, and the pumping experiment referred to, indicates an abundant supply. It is possible that these wells will furnish water of a greater degree of hardness than that now in use, but from a sanitary standpoint, which should always be the first consideration, the wells have very superior advantages. There is no opportunity for this water to be contaminated, as with the present supply; it will be cold enough in summer to be pleasant without ice, and the growth of algæ and vegetable organism, always found in ground water exposed to light and air, and which frequently give objectionable odor, taste and color to the water, will be avoided.

It is noteworthy that, so we were informed, only about twenty-five per cent. of the people of Marion use the public water supply. It is highly probable that the introduction of a better public supply would considerably decrease the use of wells. This is an important matter. You have been having much typhoid fever in your city recently, with a number of fatal cases. There is every reason to suspect that this was caused by the pollution of your wells. Wells in cities become each year more and more liable to pollution, and undoubtedly the healthfulness of your city would be very greatly improved if a pure public water supply should come into general use.

Summing up our conclusions in brief, we condemn the present public water supply as unfit for use on account of local conditions which could and should be at once removed.

We are of the opinion that the wells would furnish an abundant supply of water which, from a sanitary standpoint, would be in every way more desirable than the present supply.

Respectfully,

THOS. C. HOOVER,
C. O. PROBST,
Committee.

REPORT ON CHANGE IN THE SOURCE OF PUBLIC WATER SUPPLY FOR MEDINA.

To the State Board of Health:

GENTLEMEN:

The village of Medina has asked your approval of a change in the source of the public water supply. The present supply, which has been in use for many years, is obtained from a drilled well one hundred and sixty feet deep. This water is pure but excessively hard, and is not considered desirable for domestic use or for steam boilers.

A new well has just been drilled by the water works trustees. This well is eight inches in diameter and one hundred feet deep. The upper ten feet is a yellowish clay. This rests upon blue shale of a hundred or more feet in thickness, ninety feet of the well being in this shale. The well is cased off thirty-eight feet down. The location of the well is not all that could be desired. It is on property belonging to the village, and is within corporation limits. The land is lower than the main part of the village, and is near the bank of a small creek. There are at least two uncemented privy vaults within two hundred feet of the well. The character of the soil affords great if not complete protection against surface contamination. The "Root well," spoken of in the chemist's report, which follows, is located about three quarters of a mile in a direct line from the Medina well, by which the one just described is designated. The "Root well," has just been drilled, is of the same depth and in the same geological formation as the Medina well. This well is in a large field, far removed from any local sources of pollution, and it is therefore of interest to compare the results of the chemical examination of these two wells.

Both of these wells were pumped continuously for some time, and either will supply sufficient water for present needs. The "Root" well is intended to supply water for a private industry. The water is pleasant to the taste, and perfectly soft. There are no streams that can be utilized for a water supply for Medina, and dependence must be placed on wells.

I respectfully recommend that the proposed change in water supply be approved, but that the authorities be required to cause all privy vaults within five hundred feet of the Medina well to be cleaned and filled with fresh earth; dry earth closets above ground to replace them.

Below is a copy of the chemist's report:

COLUMBUS, JULY 22, 1896.

Dr. C. O. PROBST, Secretary of the State Board of Health:

DEAR SIR: The samples of water from Medina have been examined by myself with the following results:

Parts per 100.000.

Oxygen Required	.19
Free Ammonia	0.58
Albuminoid Ammonia	.003
Organic Ammonia	.005
Nitrous Acid	none
Nitric Acid	none
Chlorine	45.5
Total Solids	126.2
Temporary Hardness	28.2
Permanent Hardness	5.5
Total Hardness	33.7
Iron	1.75

This sample which is evidently from a deep vein presents the rather common characteristics of these waters in that the free ammonia is present in quantities that in a surface water would indicate the presence of large amounts of nitrogenous matter in a state of decomposition. A study of the other constituents containing nitrogen, as the albuminoid and organic ammonias, nitrous and nitric acids, justifies the belief that the nitrogen in the free ammonias has existed as nitrates, and the free ammonia has resulted from the reduction of these nitrates from the action of some reducing agent. The large quantity of chlorine, which in a shallow well water, under some conditions might indicate the presence of large amounts of animal excreta, has here no such significance, but existing chiefly in combination with sodium as common salt, indicates that the sample is a salt water, containing, if all the chlorine is combined with sodium, 74.9 parts per 100,000, or 43.7 grains per gallon of common salt. This deducted from the common salts leaves 51.3 parts per 100,000 of solids not salt, consisting largely of the carbonates of lime and magnesia with smaller portions of the sulphates of these bases. Iron is present in unusually large proportions in this sample. This fresh water is probably clear and contains the iron as ferrous carbonate held in solution by carbon dioxide, but the sample after standing shows a deposition of iron as ferric hydroxide, the iron thus forming an insoluble compound which precipitates. This large amount of iron will form one of the chief objections to the water as a public supply. While the total solid matter in the water is quite high, due to lime and magnesia salts, it is not more than is frequently present in deep vein waters. The organic purity of the water assures entire freedom from contamination, and the chief objections to the water are found in its mineral constituents, the large quantity of iron salts and of common salts.

Yours truly,

CURTIS C. HOWARD.

We advised against the use of this water, and a well was sunk on the banks of the river, at the place first recommended by us. Prof. Howard reported on this water as follows:

COLUMBUS, OHIO, July 8, 1895.

DR. C. O. PROBST, Secretary of the State Board of Health:

DEAR SIR: I have made a sanitary analysis of the two samples of water received from Millersburg, July 6th, with the following results:

Parts per 100.000,

	No. 1.	No. 2.
Oxygen required	.076	.072
Free ammonia	.003	.003
Albuminoid ammonia	.003	.002
Organic ammonia	.005	.005
Nitrous acid	none	none
Nitric acid	trace	trace
Chlorine	.18	.20
Total solids	28.6	28.8
Temporary hardness	18.6	17.3
Permanent hardness	4.5	5.8

Both samples are clear and contain but the barest trace of iron. These figures show these samples to be decidedly different from the first sample and of much better quality for domestic and technical purposes. The excessive quantity of iron of the first sample, which would have been a great detriment in the use of the water, and the large quantity of chlorides are not found in these samples. The very low figures obtained for these constituents which indicate contamination by organic matters prove these samples to be of a high grade of organic purity, in fact, these waters deserve special mention among those of the state for these reasons. It should be a matter of congratulation that the search for a satisfactory water supply was not abandoned until this was obtained.

Yours truly,

CURTIS C. HOWARD.

A large infiltration well was put in which has furnished an abundant supply of pure water. This water is pumped to a covered reservoir on a high hill; giving gravity pressure.

We respectfully recommend that the proposed water supply for Millersburg be approved.

Respectfully,

C. O. PROBST,
S. P. WISE,
Committee.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, JUNE 19, 1896.

TO THE WATER WORKS TRUSTEES, Millersburg, Ohio:

DEAR SIRS: At a meeting of the State Board of Health held in Cleveland June 18, 1896, a report was made on the public water supply for Millersburg, and it was voted by the board to approve of such supply.

Yours truly,

C. O. PROBST,
Secretary.

REPORT ON THE PROPOSED WATER SUPPLY FOR MINERAL POINT.

To the State Board of Health.

GENTLEMEN:

The authorities of Mineral Point having requested the examination of a proposed source of water, and having received instructions to examine and report on same, I made a visit of inspection November 13th. Mr. Thomas Osborne, mayor, and the members of the town council kindly furnished all available facilities for observation.

The village, numbering about 1,500 inhabitants, is situated in a depression between nearby hills several hundred feet higher than the village. The town site is on a table of land which is partly surrounded and bisected by gullies of varying depth. Through the bottom of these flow small streams. On the hill-sides, above and below the village, are located a number of coal mines and factories. In many places the rock crops out at the surface, and in no place has the soil much depth. The slope of the rock-seams is at a small angle, but is constant, in the general direction of the southeast. The conformation of the valleys are due to erosion; not to volcanic forces.

The present water supply is mostly from wells, and wells yielding a good supply are so few as to cause much inconvenience. There is no adequate supply for fire protection. The village has appropriated about $12,000, to be used in building water works. During the past summer a well 700 feet deep and eight inches in diameter has been drilled with a view to obtaining a town supply.

This well is located on a slope southeast of the town and about half a mile from the thickly settled district. The surface at the well is rock; there is no soil covering. Mayor Osborne has furnished me a report, showing the material and approximate thickness of rock stratifications which is here reproduced as follows:

Shale sandstone	10 feet
Solid sandstone	30 "
Soap stone or shale	18 "
Limestone	4 "
Coal under limestone	3 "
Blue shale mixed with sulphur particles	100 "
Sandstone	4 "
Blue shale	175 "
Sandstone	4 "
Conglomerate	2 "
Blue shale	45 "
Sandstone	12 "
Blue shale	223 "
Sandstone	42 "
Blue shale	28 "
	700 feet.

No water was found in the upper fifty-eight feet, nor until the limestone seam had been reached. Nor was water found at any point more than seventy-five feet below the surface. Nearly all the water therefore is derived from the strata of coal and limestone about sixty feet from the surface. The water level remains at a depth of eighteen feet from the surface. The quantity was tested by pumping. When pumping at the rate of 58,000 gallons in twenty-four hours the water-level went down to a point about thirty-seven feet below the surface and remained there.

While at the well a sample of water was taken which was sealed and sent to Prof. C. C. Howard, who reports on the same as follows:

COLUMBUS, November 23,1895.

DR. C. O. PROBST, Secretary of the State Board of Health:

DEAR SIR: The sample of water received from Mineral Point has been examined by myself with the following results:

Parts per 100.000.

Turbidity	very slight.
Sediment	slight.
Color	.0
Oxygen required	1.332
Free ammonia	.0152
Albuminoid ammonia	.0296
Nitrogen as Nitrites	.0006
Nitrogen as Nitrates	.1825
Chlorine	.27
Total solids	14.1
Temporary hardness	3.7
Permanent hardness	4.3

Although the residue on evaporation was rather small as indicated in the low total solids, on ignition there was much charring, showing the presence of considerable organic matter. The first odor was that of peaty or vegetable matter, followed immediately by the odor of burning nitrogenous matter. The unusually large amount of oxygen required, free and albuminoid ammonias and nitrogen as nitrates point strongly to the presence of animal matter in quantity too large to be permissible in a water of any pretentions to good quality.

Yours truly,

CURTIS C. HOWARD.

I was not greatly surprised at the unfavorable showing made by the chemical analysis. The quality of this water has been impaired. This impairment is probably due to the fact that the rock dip, and the drainage route of these subterranean waters from the inhabited district, is in the direction of the well. From the fact that small springs emerge from the surface in the vicinity, and in some places at points higher than the well, it would appear that these rocks are divided by fissures and cleavages that might permit the infiltration of surface drainage.

The ascertained facts in this case render it impossible to recommend this water for the town supply. Also, owing to the large mining works

in the vicinity, there is no surface supply that could be thought of for drinking water purposes.

On the other hand the need of water is urgent. The village is a thrifty, growing place and gives promise of great industrial importance. The health, the growth and the general welfare already demand the distribution of a safe and plentiful water supply. In seeking a source of such supply the dictates of wisdom would be to choose a location that is assured against surface contamination, either by going higher up on the rock formation, or, better still, by going to some valley, or surface depression which is sparsely inhabited, which furnishes a more ample store of water, and which is separated from the town site by a protecting ridge or rock-divide.

Respectfully,

JOSIAH HARTZELL,
Committee.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, December 3, 1895.

TO THE MAYOR AND COUNCIL, Mineral Point, Ohio:

DEAR SIRS: I enclose herewith a copy of a report, presented by Mr. Hartzell, on the proposed water supply for your village. This report has been submitted to the individual members of the state board of health and they have voted to approve the report: That is, they disapprove of the proposed supply.

Trusting that steps will now be taken to secure a supply which will be satisfactory in every respect, I am,

Yours very truly,

C. O. PROBST,
Secretary.

REPORT ON PROPOSED WATER SUPPLY FOR MT. STERLING.

To the State Board of Health.

GENTLEMEN:

The village of Mt. Sterling proposes to take its water supply from an eight inch well about 160 feet deep. The well is located at the edge of the village, but as there is a clay bed forty or fifty feet thick over the rock in which the water is found, local sources of contamination, should they arise hereafter, would not be liable to contaminate the supply. I would therefore recommend the approval of the proposed supply.

The report of the chemical analysis of the proposed water for Mt. Sterling is as follows:

COLUMBUS, OHIO, January 9, 1896.

DR. C. O. PROBST, Secretary of State Board of Health:

DEAR SIR: The sample of water received from Mt. Sterling has been submitted to a sanitary analysis by myself with the following results:

Parts per 100.000.

Turbidity	none.
Sediment	very slight.
Color	.0
Oxygen required	.112
Free ammonia	.0732
Albuminoid ammonia	.0068
Nitrogen as nitrites	.0000
Nitrogen as nitrates	.0016
Chlorine	.084
Total solids	50.9
Temporary hardness	36.1
Permanent hardness	6.3

No information as to the source of this sample has been furnished and all statements are based on these figures alone. This water has the character of one obtained from the deeper veins as is indicated by the high total solids and low albuminoid ammonia, oxygen required and nitrogen as nitrites and nitrates. The high free ammonia is not infrequently found in waters of this class, and while this amount would point to serious contamination by decomposing nitrogenous matters if found in a shallow well water and accompanied by large quantities of other constituents, I believe that no such significance can be attached in this case.

Yours truly,

CURTIS C. HOWARD.

Respectfully,

C. O. PROBST,
Secretary.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, January 16, 1896.

MR. J. W. HANNAWALT, Corporation Clerk, Mt. Sterling, Ohio:

DEAR SIR: You are hereby notified that the source of water supply for Mt. Sterling has been voted upon and approved by the State Board of Health.

Yours truly,

C. O. PROBST,
Secretary.

REPORT ON PROPOSED WATER SUPPLY FOR NORWALK.

To the State Board of Health.

GENTLEMEN:

In compliance with the request of the Board I visited Norwalk January 18th. The authorities of the town courteously placed at my disposal the means of acquiring needed information in regard to the proposed water supply.

In the summer of 1895 a proposition to appropriate $100,000 for the purpose of providing a new supply for the Norwalk water works was submitted to a popular vote and was favorably passed upon. Mr. L. E. Chapin was employed as consulting engineer.

Borings in the vicinity have failed to indicate the presence of underground waters of the requisite quantity or quality. Several surface streams are available. None of the latter suffer the deterioration from mining influences so common in the eastern section of Ohio, but swampy places and black soils rich in organic matter, do in several instances modify the desirableness of waters from several of the collecting areas. The engineer's decision was in favor of a supply from Norwalk Creek.

The normal spring-water flow in this stream is less in quantity than in several of the other streams. On the other hand the surface soil of the Norwalk creek water shed is of the upland, sandy and gravelly variety. The area is somewhat sparsely settled. The surface is rather level so that an active, torrent flow with quick contribution of wastes is seldom to be apprehended. The region may conveniently be subjected to the sanitary surveillance which is permitted by state law. Depressions in the channel of the stream make admirable provision for the construction of impounding reservoirs for sedimentation and storage.

The plan of the engineer provides for two reservoirs or storage basins. The upper basin has a capacity of 118,000,000 gallons. There is a spill-way to permit the escape of surplus storm waters after the reservoirs are full. In this reservoir the water comes to a state of rest, sedimentation takes place, and the clean water is admitted into the lower basin which has a capacity of 190,000,000 gallons. From this basin a pipe system conducts the water to the pumping station and stand-pipe in the edge of the town.

The normal, spring-fed flow of the creek is probably not in excess of 500,000 gallons a day. Inasmuch as it is the aim of the works to provide for a daily consumption of three million gallons, the rain water would be largely in excess, and would reduce such degree of hardness as may be disclosed by a chemical analysis of the creek water. A sample of the latter was sent to Prof. Howard whose report of the same is as follows:

COLUMBUS, OHIO, January 24, 1896.

DR. C. O. PROBST, Secretary of State Board of Health:

DEAR SIR: The sample of water sent by Mr. Hartzell from Norwalk and received January 20th, has been examined by myself with the following results:

Parts per 100.000.

Appearance—	
Turbidity	None.
Sediment	None.
Color	.0
Oxygen required	.34
Free ammonia	.0052
Albuminoid ammonia	.0162
Nitrogen as nitrites	.0005
Nitrogen as nitrates	.0891
Chlorine	.476
Total solids	32.4
Permanent hardness	9.8
Temporary hardness	14.4

All the figures indicating organic purity in this sample are somewhat higher than will be found in a water of the best quality. The results are somewhat surprising to me, as from the description furnished I had a right to expect better results than have been obtained. Most of these determinations have been duplicated with closely agreeing results. The solids and hardness are so high as to indicate that a considerable part of this supply is from a spring, and I should certainly expect that this part of the supply would be of better quality than these figures show. It is not to be understood that this is a polluted supply, most of the figures come within the limits of a permissible water, but as before stated, it was not what was expected by me.

Yours truly,

CURTIS C. HOWARD.

As the result of this analysis, of the data and conclusions reached in the report of the engineer, and of my own observations I recommend the approval of Norwalk's proposed water supply. As the report of the engineer constitutes a very interesting and instructive resume of the engineering methods in ascertaining the quantity and quality of water obtainable from a given water shed I append the same to, and make it a part of this report.

Respectfully,

JOSIAH HARTZELL,
Committee.

REPORT OF THE CONSULTING ENGINEER.

CANTON, O., December 31, 1895.

TO THE HONORABLE, THE MAYOR AND CITY COUNCIL, Norwalk, O.:

GENTLEMEN; In pursuance of a resolution of your council, duly passed, authorizing a report upon the subject of Norwalk Creek as being a suitable water supply for the city of Norwalk, I hereby have the honor to make the following report:

In the study of the question of the public water supply, the first consideration is the amount of daily consumption, including under this term all consumption from which revenue is obtained, and all leakage and losses of every nature. The present consumption, so far as my information extends, is not far from an average of one and a half million gallons per day. This amount of water is supplied to the citizens of Norwalk through approximately 750 services, giving a result of approximately 2,000 gallons consumption per service per day, which is undoubtedly above the general average, inasmuch as you have two railroads which are large consumers. And with an acceptable supply of water, both as to quality and quantity, it is somewhat problematical as to the amount of water which would be used per day by the city of Norwalk when its population reaches 20,000. A surface supply by reason of its being soft water generally results in a much larger consumption per service than that of a supply coming from drilled wells. However, without going into details, it seems expedient to provide for a daily supply of three million gallons as that necessary in making estimates for an improved supply.

SURVEYS.

Careful surveys have been made of the water shed of Norwalk Creek and the areas available for storage purposes lying in the valley of the creek. These surveys developed the fact that the total area of water shed of Norwalk Creek above the intersection of the Old State road and Medina road to be 5,100 acres. This drainage area is comparatively free from contamination and relatively sparsely settled, the soil being a heavy gravelly clay and generally well under-drained, presents favorable conditions for the collection of a surface supply.

RAINFALL.

There is hardly any phenomenon of nature from which it is so difficult to induce definite conclusions as that of rainfall. As a matter of fact, rainfall is of such a varying quantity that it is hard to lay down general rules in regard to its phases, even with the aid of carefully compiled statistics of rainfall. Many of these statistics are extremely misleading and inaccurate, but the government reports obtainable on these subjects are the most reliable sources of information accessible to the en-

gineer in localities where such records have not been carefully obtained for this express purpose. Generally speaking, however, the amount of rainfall, as determined from the government reports, is less than the rainfall actually occurring, since most of the gauging of such rainfall is from the tops of high buildings, and careful investigation of engineers, who have given this matter a long study, has shown it to be a fact that instruments located close to the surface of the ground show a larger amount of rainfall than those at higher elevations.

Again, in making deductions or arriving at conclusions as to rainfall from such reports, it is frequently impossible to obtain a series of reports extending back to a period remote enough to develop any law on the action of nature in this respect. In considering this problem, a careful study has been made of the rainfall records from the government stations at Toledo, Sandusky and Cleveland.

The observed amount of rainfall at these stations are given in tables Nos. 1, 2 and 3, made a part of this report. They have also been platted for the purpose of graphically illustrating the various phases of rainfall on Plats Nos. 1, 2 and 3. From an inspection of these records, this general truth is apparent: The rainfall is least at the Toledo station, still larger at the Sandusky station, and greater at the Cleveland station. The mean annual rainfall being 30.7 inches at the Toledo station over a period of twenty-five years; 35.91 inches at the Sandusky station over a period of seventeen years; and 37.83 inches at the Cleveland station over a perion of forty years.

Considering the minimum precipitation at each of these three stations, we find it to be 21.33 inches at the Toledo station, occurring in 1894; 24.89 inches at the Sandusky station, occurring in 1889; and 27.34 inches at the Cleveland station, occurring in 1888. And in the absence of any definite rainfall statistics at Norwalk, the rainfall records of the Sandusky station may be taken as applicable to the water shed of Norwalk Creek, and the minimum rainfall of 24.89 inches would seem to be a reasonable assumption as to the amount of rainfall had in any dry year over the water shed of Norwalk Creek. Especially so, since local observations taken at points south of Lake Erie, show a total annual rainfall somewhat in excess of that observed at lake stations.

FLOW OF STREAMS.

The total flow of any stream must equal the total rainfall on its water shed less evaporation, and in some cases less percolation to other drainage valleys lying at lower levels, and the difference between the rainfall and the run-off of the streams may be safely assumed to be the total evaporation from the water shed supplying said stream. Our Ohio streams have an annual spring flood, the water gradually rising during the spring months, then slowly declining during the summer and autumn months, reaching a minimum stage in the months of October and November.

The run-off of streams as observed in cases where accurate measurements have been made, show the run-off to be from forty to fifty per cent. of the total precipitation, being undoubtedly smaller during the period of drought due to excessive evaporation, and is practically independent of the soil forming the water shed, except in the case of very small streams.

To determine the run-off from any given stream, we can compare its water shed and run-off with those of other water sheds, whose run-off has been accurately determined during a series of years, and taking the percentage of the run-off to the rainfall and supplying it to the rainfall of the driest year in any case, we can approximate closely the probable run-off of any given stream.

Definite information on this subject is had from many eastern water sheds, but very little information of this nature is obtainable from western water sheds. The Cochituate water shed, forming a part of the water supply of the city of Boston, has many characteristics which are quite similar to that of Norwalk Creek—the rainfall however, being materially different, but the percentage of water collected from the Cochituate shed may be assumed to be a fair criterion of what may be expected from the water shed of Norwalk Creek.

The driest year observed on the Cochituate water shed for nine years, was in 1864, during which year forty-three per cent. of the total precipitation reached the storage lakes. The percentage collected for each month being as follows:

January	71 per cent.
February	159 per cent.
March	48 per cent.
April	66 per cent.
May	57 per cent.
June	84 per cent.
July	39 per cent.
August	19 per cent.
September	32 per cent.
October	22 per cent.
November	23 per cent.
December	31 per cent.

The excess of percentage in February above that of actual rainfall is due to the snowfall of winter months lying on the ground and melting and running off in the succeeding months.

However, in using these percentages, it must be remembered that the snowfall of Massachusetts is materially in excess of that of Ohio, and, for the purpose of applying these percentages to Norwalk Creek one-half of the per cent. collected in February will be used.

The driest year as observed by the Sandusky records being that of 1889, the rainfall for that year will be taken as representing the minimum

rainfall in any dry year, and the percentage of water collected in the various months of the year will be assumed to be those of the Cochituate water shed for the year 1864 with the exception of February.

Assuming the drainage area at 5,100 acres less the water surface of fifty-seven acres, and a further deduction of forty-three acres to cover all contingencies of evaporation, results in 5,000 acres, from which we are to determine the amount of supply available from this water shed and the storage capacity necessary. In this consideration it may be well to state that various water sheds in the state of Ohio, so far as approximate estimates of water collection can be obtained, show a daily supply of about 400.000 gallons per square mile of water shed with the storage capacity of 30,000,000 gallons. With eight square miles of water shed it would be necessary to have approximately 240,000,000 gallons storage; and this amount of storage has been used in computation of rainfall, percentage of same collected, and a daily consumption of 3,000,000 gallons, which results are shown in table No. 4.

TABLE NO. 4.

Showing the monthly rainfall during an extremely dry year, the percentage of such rainfall collected in each month, the net rainfall collected in each month, the cubic feet of water collected per month, the monthly consumption in cubic feet, the surplus of water collected over the consumption in each month, and the deficiency collected under the consumption of each month, and the storage water in reservoirs at the end of each month.

Month.	Recorded rainfall.	Per cent. collected.	Inches collected.	Cubic feet for the month collected.	Monthly consumption.	Surplus at end of month.	Deficiency at end of month.	Storage at end of month.
Jan.....	2.43	71	1.72	31,218,000	12,400,000	18,818,000	.....	18,818,000
Feb.....	1.27	80	1.02	18,513,000	11,200,000	7,313,000	.....	26,131,000
March	2.33	48	1.12	20,328,000	12,400,000	7,928,000	.....	32,000,000
April.....	1.45	66	.96	17,424,000	12,000,000	5,424,000	.....	32,000,000
May.....	4.52	57	2.53	45,919,500	12,400,000	33,519,000	.....	32,000,000
June.....	2.29	84	1.92	34,848,000	12,000,000	22,848,000	.....	32,000,000
July.....	.98	39	.38	6,897,000	12,400,000	.....	5,503,000	26,497,000
August.....	1.25	19	.24	4,356,000	12,400,000	.....	8,044,000	18,453,000
Sept.....	1.84	32	.59	10,708,500	12,000,000	.....	1,291,500	17,161,500
Oct.....	1.27	22	.28	5,082,000	12,400,000	.....	7,318,000	9,843,500
Nov.....	1.71	23	.39	7,078,500	12,000,000	.....	4,921,500	4,922,000
Dec.....	3.65	31	1.13	20,509,500	12,400,000	8,109,500	.....	13,031,500

In an inspection of the above table, it will be seen that the storage basin would be full during the first six months of the year, then be drawn upon to supply the consumption during the next five months. The storage basin being full at the end of the month of June, and at the end of the month of November, containing 4,922,000 cubic feet or 36,918,000

gallons of water. On this basis it is apparent that a storage capacity of about 240,000,000 gallons of water should be attained in order to provide against any possible contingencies. This means approximately 270,000,000 gallons capacity of storage basins, as it will not be wise to draw the water so as to entirely empty the basins.

EVAPORATION.

In deducing the results shown in the above table, it may be suggested that the question of evaporation has not been fully considered, but the drainage area used in making computations has been assumed to be 5,000 acres instead of 5,100 acres as actually shown on the drainage map.

The observed evaporation from large areas of water having considerable depths, varies from eighty to one hundred per cent. of the total yearly precipitation, and it is believed to be a reasonable assumption that the deduction of one hundred acres from the total drainage area would provide for all the losses from evaporation. This percentage above mentioned is simply a comparative one, as generally speaking there is no connection between rainfall and evaporation. The evaporation being less during the winter months than in the summer months, greatly exceeding the rainfall in the summer months and much less than the rainfall during the winter months..

STORAGE AVAILABLE.

In considering the method of obtaining storage in the valley of Norwalk Creek, we find from the cross sections it is possible to construct a reservoir embankment across the valley in three localities, the first known as "Line A" and located on the old State Road, the second known as "Line B" and located at a point just above the old State Road; and a third known as the "Upper Dam" and located on cross sections R and S, all as shown on Plat No. 5.

In this problem it will be desirable to construct two basins if possible, the larger one located below, the smaller one above, and from which an overflow may be constructed in order to discharge the flood waters of the stream at times when the basins are full. This upper basin would therefore catch practically all of the silt carried in suspension, leaving the lower basin to be a receptacle for clear water only. This arrangement also enables the overflow to be constructed across the divide separating Norwalk Creek from a small stream lying just to the south. This division of the total storage into two basins can be attained by constructing a reservoir embankment for the lower basin at "Line A," or at "Line B," and also building a dike along the Medina road and the Wheeling and Lake Erie Railway; and in making the computations a flow line at an elevation of 134 feet has been used, the tops of all embankments at the

lower dams being four feet higher than the flow-line used; the slopes to be three to one on the sides exposed to wave action, and two to one on all other sides.

In considering the question of reservoir embankments as set forth in the preliminary report of November 11, 1895, it is highly necessary to provide means to thoroughly cut-off the passage of water from the upper to the lower side of the embankment. This may be attained by core or cut-off wall of puddled clay or of masonry; and with thin embankments it will be necessary to carry this core wall up to the same level as the flow line of the reservoir, but with the embankments herein considered it is deemed unnecessary to construct this cut-off wall to a greater height than that slightly above the present surface of the valley, bearing in mind that the thickness of the reservoir embankment at the bottom of "Line A" is approximately 105 feet, and on "Line B" 195 feet; being ample provision against the passage of water through the embankment providing means are taken to thoroughly cut off any passage of water through the material on which the embankment rests. A section of these proposed embankments is shown in detail on Plat No. 5.

In the construction of these embankments the material should be taken from the inside of the basin, thus increasing the storage capacity, and when placed in the embankment should be a uniform mixture of gravel and clay placed in layers not exceeding six inches in thickness and rolled by means of grooved rollers.

The following statement shows the approximate cost of these reservoirs at the various localities:

FIRST.

Dam on the line of Old State Road known as "Line A."
Elevation of flow line 134.
Top of bank 138.
Bank twenty feet wide on top.
Outside slopes two to one.
Inside slopes three to one.
Area of water surface, reservoir full, 190,000,000 gallons.

APPROXIMATE COST.

127,000 cubic yards of embankment at 18 cents	$22,860 00
31,000 cubic yards of dike along Medina Road and Wheeling & Lake Erie R. R., at 15 cents	4,650 00
1,000 cubic yards of masonry cut-off wall	5,000 00
Clearing and grubbing timber	500 00
One effluent chamber, supply and drain pipes	3,000 00
Total	$36,010 00

SECOND.

Lower dam on "Line B."
Flow line elevation 134.
Top of bank elevation 138.
Bank twenty feet wide on top.
Outside slopes two to one.
Inside slopes three to one.
Area of water surface, reservoir full, twenty-seven acres.
Approximate capacity of reservoir full, 145,000,000 gallons.

APPROXIMATE COST.

60,000 cubic yards of embankment at 18 cents	$10,800 00
8,000 cubic yards of stripping at 15 cents	1,200 00
31,000 cubic yards of dike at 15 cents	4,650 00
Clearing and grubbing timber	500 00
750 cubic yards of masonry cut-off wall	3,750 00
One effluent chamber, supply and drain pipes	3,000 00
Total	$23,900 00

THIRD.

Upper reservoir at "Station R-S."
Flow line elvation 155.
Top of bank elevation 160.
Slopes three to one each side.
Banks twenty feet wide on top.
Area of water surface, reservoir full, thirty acres.
Capacity of reservoir full, 118,000,000 gallons.

APPROXIMATE COST.

60,000 cubic yards of embankment at 18 cents	$10,800 00
400 cubic yards of cut-off wall	2,000 00
Clearing and grubbing timber	500 00
Pipe connections to lower reservoir	800 00
8,500 cubic yards of excavation for overfall channel	1,275 00
Total	$15,375 00

FOURTH.

Land required—The amount of land required is approximately 106.37 acres at $120.00 per acre $12,764 00

FIFTH.

Supply lines to pumping station—
For reservoir located on "Line B" and pumping station at the site of the electric light plant, would require 7,300 feet of influent pipe.
For the reservoir located on "Line A" and with the same pumping station site requires 7,000 feet of influent pipe.
The cost of this, using as a basis 20-inch pipe, would be for the reservoir located on "Line B" .....
And for reservoir located on "Line A" .....

Or using a 16-inch influent pipe in place of the 20-inch, would result as the cost for the line with the reservoir located on "Line B"..... 13,200 00
And for the reservoir located on "Line A"..... 12,600 00

Using these approximate estimates, the total cost of the supply at the various locations, would be as follows:

FIRST ESTIMATE.

Lower reservoir located on "Line A," and upper reservoir, located on "Line R–S."

Lower reservoir complete	$ 36,010 00
Upper reservoir complete	15,375 00
Land	12,764 00
Supply line of 20-inch pipe	15,400 00
Addition to electric light building for pumping room	3,000 00
One new boiler, 66 inches by 16 feet	1,500 00
One new 3,000,000 gallon pumping engine	6,500 00
Removing and resetting 2,000,000 gallon pumping engine	1,000 00
Pump connections	1,000 00
Force main from pumping station to distribution	1,500 00
Stand pipe, metal work and land	12,000 00
Incidental expenses, engineering, printing and inspecting	3,400 00
Total estimated cost	$109,449 00

SECOND ESTIMATE.

The lower dam located on "Line R"	$ 23,900 00
Upper reservoir located on "Line R–S"	15,375 00
Land	12,764 00
Supply line to electric light station, 20-inch pipe	16,060 00
Addition to electric light station for pump room	3,000 00
One new boiler, 66 inches by 16 feet	1,500 00
One new 3,000,000 gallon pumping engine	6,500 00
Resetting present 2,000,000 gallon pumping engine	1,000 00
Pump connections	1,000 00
Force main connecting to distribution	1,500 00
Stand pipe, metal work and land	12,000 00
Incidental expenses, engineering, inspecting and printing	3,400 00
Total estimated cost	$ 97,999 00

THIRD ESTIMATE.

Using 16-inch effluent or supply main from the lower reservoir to the pumping station would make the total cost of the reservoirs for the lower dam located on "Line A," $2,800.00 less than that shown in estimate No. 1, or a total of..... $106,649 00

FOURTH ESTIMATE.

Using 16-inch effluent or supply main from the reservoir located on "Line B," to the pumping station would reduce the estimate of cost set forth in No. 2, $2,860.00, making a total cost of..... $95,139 00

FIFTH ESTIMATE.

Locating the pumping station at the reservoir site, and laying a 16-inch force main in Woodlawn avenue to the intersection of Woodlawn avenue and Seminary street:

Lower reservoir located on "Line A"	$36,010 00
Upper reservoir located on "Line R-S"	15,375 00
Land	12,764 00
Pumping station at the reservoir	6,000 00
Force main to the distribution, 5,800 feet, 16-inch pipe	10,000 00
Two boilers, 66 inches by 16 feet	2,500 00
One 3,000,000 gallon pumping engine	6,500 00
Removing and resetting old 2,000,000 gallon pump	1,000 00
Suction connections	1,500 00
Stand pipe and foundation	11,000 00
Railway switch	500 00
Contingent expenses	5,400 00
Total	$106,549 00

SIXTH ESTIMATE.

Locating the pumping station at the reservoir, pipe 16 inches diameter for force main:

Lower reservoir on "Line B"	$23,900 00
Upper reservoir on "Line R-S,"	15,375 00
Land	12,764 00
Pumping station	6,000 00
16-inch force main	10,000 00
Two boilers	2,500 00
One 3,000,000 gallon pumping engine	6,500 00
Removing and resetting old pump	1,000 00
Suction connections	1,500 00
Stand-pipe and foundation	11,000 00
Railway switch	500 00
Contingent expenses	3,400 00
Total	$94,439 00

REMARKS.

While the above quantities and the prices used for the same are only approximate, yet it is believed the work can be completed on competitive bids for the various totals set forth in the above estimates.

LOCATION OF STAND-PIPE.

With the pumping station located at the electric light works, a feasible location for the stand-pipe would be the vacant lot situated on the northerly side of Summit street, being so located would render the stand-pipe convenient to the pumping station, and in the estimates for the stand-pipe the price of a regulating valve has been included, by means of which water would be admitted to the stand-pipe until the pressure reached that equal to the top of the stand-pipe, at which time the valve

would automatically close, allowing the engineer to increase the pressure for fire purposes without mechanically cutting off the stand-pipe.

Again, should the works be located at the reservoir site, ample opportunity for a stand-pipe location exists either on the reservoir grounds or on the grounds adjoining Woodlawn avenue on the north, the same regulating valve being connected with the stand-pipe.

PUMPING STATION.

Regarding the location of the pumping station, estimates Nos. 1, 2, 3, and 4 contemplate building a pumping station either as a part of or in close proximity to the lighting station. Should the city contemplate the purchase of the lighting plant, it would be well to arrange the pumping station and steam plant so that both plants could in the future be operated by the same force of men, and in these estimates the amount named for the building has been based upon the supposition that desirable arrangements could be made with the electric light authorities, whereby the pumping station could be attached to their power house, and by the addition of a third boiler their steam plant furnish steam for not only the lighting plant, but also the pumping plant.

Should it be thought desirable to make this power plant entirely independent of the lighting plant, the further sum of $4,000 should be added to each of estimates, Nos. 1, 2, 3 and 4.

COMPARATIVE COST OF PUMPING BETWEEN THE SUPPLY LOCATED ON THE GIBSON FARM WITH THAT OF THE PRESENT LOCATION OF PUMPING STATION.

For the purpose of ascertaining the probable saving in the cost of fuel due to the decreased pressure against which the water must be pumped, the following computation has been made. Although not strictly accurate, it is probably a reasonable deduction as to what may be expected by the use of the same class of machinery in the two locations.

We find that in the year ending March 18, 1895, that 1,466,781 gallons of water per day were pumped from the present pumping station. To pump this water required approximately 950 tons of coal per year, or 5,200 pounds of coal per day. The total head pumped against was probably as follows: Static head due to elevation 100 feet; pressure head carried up town thirty-five pounds, equals eighty-one feet; friction loss through 4,000 feet of 10-inch pipe 30.2 feet; friction loss through 500 feet of 16-inch pipe 3.8 feet; probable total head pumped against 215 feet; making the total daily foot-pounds of work done the product of 1,466,781 times 8⅓ times 215, equals 2,628,143,875, with a consumption of coal of 5,200 pounds, or a duty of approximately 500,000 pounds of water lifted one foot high per pound of coal. This duty is undoubtedly in excess of that actually occurring, for the quantity of water pumped

SANDUSKY, OHIO, STATION.

TABLE NO. 2.

Total Precipitation in Inches for the Month of

Year.	January.	February.	March	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total
1877	.....	.....	.....	.....	.....	.....	.....	6.28	0 73	4 39	3.41	1.53	.....
1878	3.39	3.06	5 33	2.32	2.96	2.61	4.85	1.59	6.76	3.72	2 88	3.44	42.91
1879	1 19	2.46	1.95	1.74	1 16	5.97	4 01	3.26	5.77	0.69	5.22	4.29	37.71
1880	3.77	2.11	2.66	4.67	4.49	2.91	6 06	5.03	2.02	2.27	2.39	1.06	39.44
1881	1.31	3.25	2.75	2.47	0.98	10.09	3.88	0.96	3.78	5.58	4.99	6.27	46.31
1882	2.46	3.79	4.02	2.75	7.11	3.71	1.51	8.02	1.67	2.95	2.92	1 61	42.55
1883	1.01	4.12	0.69	Tem	p. clo	sed		4.74	4 07	4.88	3.94	2.61	.....
1884	1.25	5 48	3.26	1.50	3 70	2.42	5.75	2.48	3.17	1.18	1 01	2.44	33.64
1885	3 29	0.83	0.75	2.19	4.35	6.61	3.08	3.87	1.82	2.92	2 75	1.77	34 23
1886	2.28	1 12	2.38	2 35	3.69	2.16	2.26	3.78	3.89	1.24	2.94	2.97	31.00
1887	1.51	8.53	2.16	2 10	1.61	4.44	0.59	1.07	2.31	0 88	2.25	1.90	29.85
1888	2.14	1.26	2.85	1.61	2 30	3.96	3.58	1.98	1.41	1.89	2.35	1.12	26.45
1889	2.43	1.27	2.23	1.45	4.52	2.29	0.98	1 25	1.84	1.27	1.71	3.65	24.89
1890	3 49	3.10	2.78	3.68	5 28	2.78	1.99	3.17	4 15	6.66	2.56	0.96	40.60
1891	2.00	4 05	2.27	2.14	1.48	4.38	2.05	1.53	1 10	2.64	5.45	1.60	30.69
1892	1.99	2.58	4.97	2.56	6.91	6.41	4.81	5.53	2.69	0.93	2.85	1.05	43.28
1893	1.94	3.12	1.66	4.95	2.96	0.91	3.45	1.13	0.93	3.27	2.16	2.52	29.00
1894	1.95	2.33	1.64	1.67	3.64	3.22	2.84	0.23	3.49	3.48	1.40	2.20	28.09
1895	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Av. 18 yrs	2 20	3.09	2.61	2.51	3.57	4.05	3.23	3.13	2 86	2 82	2.95	2.89	35.91

The above table shows the precipitation at the U. S. weather bureau station at Sandusky since establishment of that station.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY.
COLUMBUS, January 31, 1896.

MR. F. W. VAN DUSEN, Mayor, Norwalk, Ohio:

DEAR SIR: I herewith enclose a copy of report on proposed water supply for Norwalk, and beg to inform you that the proposed supply has been approved by the State Board of Health.

Yours truly,

C. O. PROBST.
Secretary.

REPORT ON THE PROPOSED WATER SUPPLY FOR OXFORD.

To the State Board of Health.

GENTLEMEN:

The village of Oxford, Butler county, introduced water works without consulting the Board. On being notified that the Board's approval was required by law, application was duly made, and a committee visited Oxford, August 15, 1896.

The works are owned by the city, and water is being delivered to a small number of consumers. The supply is obtained from an infiltration well thirty feet in diameter and thirty-eight feet deep. The brick walls of the well are carried about 8 feet above ground. The well is located a mile or more east of the central part of the village, and about 75 feet east of Tallewanda Creek, a small stream of a fair degree of purity. This stream occasionally overflows and may reach the well, but would not enter it in any great amount.

The well is surrounded by farm land which approaches within perhaps a hundred feet of it. The water shed which contributes the ground water from which the well obtains its supply, is of considerable extent, and if the well does not afford a sufficient supply, this apparently, may easily be increased by other wells, or by filter galleries. The soil is loam with gravel and should yield its water easily. The water was not quite clear, but was unobjectionable to the taste.

There are no streams near Oxford which would afford a satisfactory supply, and the location determined upon for obtaining a ground water supply seems as favorable as any to be had.

The report of the chemist is appended hereto.

We recommend that the water supply proposed for the village of Oxford be approved. We think it desirable, however, that more land should be purchased in order to prevent possible pollution from the manuring of the farm land, which we consider too near, and in order to have control of additional supplies of water if the present well is found to be inadequate.

Respectfully,

BYRON STANTON,
C. O. PROBST,
Committee.

COLUMBUS, OHIO, August 27, 1896.

DR. C. O. PROBST, Secretary of the State Board of Health:

DEAR SIR: The sample of water received from Oxford has been submitted to a sanitary analysis by myself with the following results:

Parts per 100,000.

Turbidity	none
Sediment	none.
Color	.0
Oxygen required	.128
Free ammonia	.0038
Albuminoid ammonia	.0062
Nitrogen as nitrites	.0002
Nitrogen as nitrates	.0133
Chlorine	.427
Total solids	40.5
orary hardness	32.1
ent hardness	2.6

With the exception of the free ammonia which is a little higher than is usually found in a water of excellent quality, all the members indicating the presence of organic matter in this sample are so low that it must be regarded as a water of very fair quality. The mineral salts in the water are larger in amount than is quite desirable. A large portion of these are carbonates of lime and magnesia, constituting the temporary hardness of water and removed by boiling.

Yours truly,

CURTIS C. HOWARD.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, September 11, 1896.

TO THE BOARD OF WATER WORKS TRUSTEES, Oxford, Ohio.

SIRS: The State Board of Health has considered your application for approval of a public water supply to be obtained from a well located a mile or more east of the central part of the village, and about seventy-five feet east of Tallewanda Creek; and you are hereby notified that the supply has been approved.

I enclose a copy of an analysis of the water.

Respectfully,

C. O. PROBST,
Secretary.

REPORT ON THE PROPOSED WATER SUPPLY FOR RIPLEY.

To the State Board of Health.

GENTLEMEN:

Having been appointed to make an inspection of a proposed water supply for the town of Ripley, Brown county, I visited that place May 8th and respectfully submit the following:

The town of Ripley is a place of about 3,000 inhabitants. The council proposed to construct water works, the supply to be pumped from the Ohio river into two settling reservoirs of 500,000 gallons each, to be lined with brick and to be concreted. These settling basins will be near the river, from which the water is to be pumped alternately into a distributing reservoir on the hill back of the town. The pumping capacity of the pumps is to be 500,000 gallons in twenty-four hours so that either reservoir can be filled in three working days of eight hours each. In this way more than three weeks time will be allowed for sedimentation with the water in a quiescent state before using. The capacity of each reservoir is equal to about four days' supply. No other system of purification is contemplated at present.

The nearest town of any size on the Ohio river side is Portsmouth, about fifty miles above. Marysville, Ky., is eight miles above.

Believing that sedimentation for the time allowed will make the water of the Ohio river much better than the well water of Ripley, I have no hesitation in recommending the approval of the plans and location proposed by Mr. Layman, and approved and accepted by the council of Ripley. The application of the authorities and the plans drawn by the engineer accompany the report.

Respectfully,

BYRON STANTON,
Committee.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, June 19, 1896.

MR. E. F. LAYMAN, Consulting Engineer, 32 E. Third Street, Cincinnati, O.

DEAR SIR: The State Board of Health has considered your application for approval of a public water supply for the village of Ripley, to be obtained in the manner set forth in the report submitted to the Board by Dr. Byron Stanton, a copy of which is enclosed, and you are hereby notified that such supply has been approved.

Yours truly,

C. O. PROBST,
Secretary.

REPORT ON THE PROPOSED WATER SUPPLY FOR ROCKFORD.

To the State Board of Health.

GENTLEMEN:

Rockford is a pleasant village of about 1200 inhabitants, situated on the south bank of the St. Marys river. The trustees, Messrs. J. W. Smith, D. H. Robison and W. T. Barbour, have drilled a well southwest of the village to a depth of 145 feet where a large vein of water was struck. The well is drilled through clay, quicksand and gravel. I was unable to get the exact strata and the depth of each that was passed through. It is cased the 145 feet with six inch casing. The slope of the land is to the north and east, away from the well, so there is no danger of pollution from the drainage of the village, and the surroundings are such that there is no danger of surface contamination.

he exact capacity is not known, but a test was made with a steam
d they were able to raise 45,000 gallons in twenty-four hours,
acity of the pump, but it did not exhaust or lessen the supply.

At the time of my visit, August 4, there was no pump in the well. A small hand pump was secured and we were able to get a sample after pumping the well for some time. The water is clear and pleasant. It is hard, but not as hard as the shallower wells in the vicinity, and not too hard for a potable water.

I do not hesitate to recommend the approval of the source of supply, and believe it will be eminently satisfactory.

Respectfully,

R. D. KAHLE,
Committee.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, August 25, 1896.

MR. J. W. SMITH, Secretary of the Water Works Trustees, Rockford, Ohio.

DEAR SIR: The State Board of Health has caused an examination to be made of the proposed water supply for your village, and you are hereby notified that said supply is approved.

Yours truly,

C. O. PROBST,
Secretary.

REPORT ON THE PROPOSED WATER SUPPLY FOR ST. MARYS.

To the State Board of Health.

GENTLEMEN:

St. Marys, a city of about 4,500 inhabitants, in Auglaize county, proposes to get its water supply from deep wells. These four wells are located in the city limits and about 1,400 feet from the main street. They are 280 feet deep and 8 inches in diameter. These are artesian wells with a strong flow and since they have been drilled, some artesian wells about two miles south and east of town have ceased to flow, showing that the water supply comes from some great distance.

The following is a copy of an analysis shown me by Mr. O. E. Dunan, president of the trustees, and made for the civil engineer:

CINCINNATI, O., October 23, 1896.

The following is a statement of the results of an examination of well water from St. Marys, in parts per 100.000:

Total solids	64.0
Chlorine	1.05
Free ammonia	0.037
Albuminoid ammonia	0.003
Nitrites	0.00

Nitrates	0.00
Temporary hardness in terms of calcium carbonates	31.5
Permanent hardness	5.0
Iron as ferrous carbonate	.85

Respectfully submitted.

W. SIMONSON.

The analysis shows this to be a good water. The capacity of these wells is estimated at one and one-half million gallons per day, and the estimated cost of the plant is $60,000. The plant is owned by the city. These wells are located between the St. Marys river and a race but no connection is to be made to either.

I recommend the approval of this source of supply.

Respectfully,

R. D. KAHLE,
Committee.

REPORT ON AN INVESTIGATION OF WATER SUPPLY FOR SIDNEY.

To the State Board of Health.

GENTLEMEN:

In 1873 Sidney introduced a public water supply getting the water from Mosquito creek, a small stream near by. In 1880 the source of the supply was changed to the Miami river which runs through the city. This source has been used since that time and it is at times quite impure, and at all times a questionable supply. It is pumped through a tank sand filter which does not benefit the water but probably has the effect of allaying their fears as to the impurities therein. However, the secretary, Mr. McCune, informs me that few families use it for other than sanitary purposes. The present Board of Water Works Trustees, Messrs. R. O. Bingham, W. A. Graham and E. F. Lierman, drilled a well a few feet from the pump station and struck a large vein of water. When your committee visited Sidney on January 20, it was flowing about an inch and a half stream through a hole in the cap of the casing from fifteen to twenty feet high, showing there was considerable pressure behind it. The cap was removed from the casing and a very strong flow was permitted from the well. This well is drilled through thirty-five feet of gravel and eighty-five feet of limestone to a depth of one-hundred and twenty feet. No water is reached after striking the rock until this vein is struck. It is cased to the rock. The following is a sanitary analysis of the water:

COLUMBUS, O, January 25, 1896.

DR. C. O. PROBST, Secretary State Board of Health:

DEAR SIR: The sample of water sent by Dr. Kahle from Sidney and received January 21, has been examined by myself with the following results:

Parts per 100.000.

Oxygen required	.100
Free ammonia	.0562
Albuminoid ammonia	.0038
Nitrogen of nitrites	.0000
Nitrogen of nitrates	.0033
Chlorine	.322
Total solids	54.1
Turbidity	none.
Sediment	none.
Color	.0
Permanent Hardness	5.4
Temporary hardness	40.8

This water presents the characteristics of a deep well water, the free ammonia quite high, but with all other constituents indicating organic impurity so low that this is undoubtedly derived from the reduction of nitrates and hence entirely without significance. This is confirmed by the trace of nitrates while the albuminoid ammonia is at about the minimum quantity. The chlorine is so low that unlike some deep well waters it is not a salt water. The total solids are rather high, the hardness is also higher than is desirable, but fortunately, a large part of it is temporary and hence easily removed by boiling.

Yours truly,

CURTIS C. HOWARD.

This shows it to have a temporary hardness of 23.8 grains per U. S. gallon, and a permanent hardness of 3.1 grains per gallon. It will be seen that this water is softened very much by boiling, and as a sanitary water it is good. The temperature of the water at the well is fifty-two degrees. I therefore recommend the approval of this source of supply, and also recommend that all connections be cut off from the river except in case of emergency. It is proposed by the trustees to drill five wells. The estimated capacity of the present well is 250,000 gallons per day. Sidney has a population of about 7,000 and I believe these wells will yield then an abundant supply for all purposes.

Respectfully,

R. D. KAHLE,
Committee.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, January 31, 1896.

MR. W. A. GRAHAM, Member Board of Water Works Trustees, Sidney, Ohio:

DEAR SIR: I enclose herewith a copy of a report on water supply proposed for Sidney, and beg to notify you that the proposed supply has been duly approved by the State Board of Health.

Yours truly,

C. O. PROBST,
Secretary.

REPORT ON PROPOSED WATER SUPPLY FOR TIPPECANOE CITY.

To the State Board of Health.

GENTLEMEN:

By direction of the President I went to Tippecanoe City August 28, to make an inspection of a proposed source of water supply. The well from which it is proposed to obtain the water is two hundred and fifty feet east of the canal that skirts Tippecanoe City on the east, and is about a quarter of a mile from the Miami river at its nearest point. The best well is six inches in diameter and is cased to a depth of forty feet. It passes through ten feet of yellow clay, five feet of gravelly clay, ten feet of blue clay, two feet of hard-pan, then through fifteen feet of gravel to solid rock, but the pipe was drawn two feet to permit the more ready entrance of water. The top of the well is somewhat lower than the general surface of the town and is between the town and the river, but the bottom of the well is considerably below the bed of the river.

The location of the well might be thought objectionable but the stratum of hard-pan through which it is sunk is undoubtedly an extensive one, a number of deep wells in different parts of the town having struck hard-pan at about the same level as the stratum through which the test well is sunk.

Efforts have been made to find a supply of water by sinking wells on the higher ground south and west of the town, but so far without success.

My impression is that there can be no danger of contamination from local sources. This opinion seems to be confirmed by the report of Prof. Howard's analysis, a copy of which accompanies this. I have, therefore, no hesitation in recommending the approval of the proposed source of water supply.

Respectfully,

BYRON STANTON,
Committee.

COLUMBUS, O., August 31, 1896.

DR. BYRON STANTON, Cincinnati, Ohio:

DEAR SIR: The sample of water sent by yourself from Tippecanoe City has been submitted to a sanitary analysis by myself with the following results:

Parts per 100.000.

Turbidity	none.
Sediment	very slight.
Color	.0
Oxygen required	.144
Free ammonia	.0132
Albuminoid ammonia	.0044
Nitrogen as nitrites	.0002
Nitrogen as nitrates	.0033
Chlorine	5.17
Total solids	74.8
Temporary hardness	56.8
Permanent hardness	9.2

The amount of oxidizable matter in this water, together with the nitrogen as nitrates and nitrites and albuminoid ammonia, is so small as to show almost the minimum quantity of organic matter, and the fact that the water is from a well of considerable depth in connection with the preceding fact, shows conclusively that the somewhat large amount of free ammonia is not derived from the recent decomposition of organic matter. The high chlorine in a deep well water containing a large amount of mineral matter may be pronounced to be without significance. The water is a very hard one, and the hardness is largely temporary in character and hence removable by boiling. A study of the carefully made sanitary survey of Dr. Stanton is of value in arriving at the conclusion that the water at present is an uncontaminated one, the chief objection to which lies in its extreme hardness.

Yours truly,

CURTIS C. HOWARD.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, September 11, 1896.

MR. JOHN M. HAAGA, Corporation Clerk, Tippecanoe City, Ohio.

DEAR SIR: The State Board of Health has considered your application for approval of a public water supply to be obtained from a well two hundred and fifty feet east of the canal and about a quarter of a mile from the Miami River at its nearest point; and you are hereby notified that the supply has been approved.

I enclose a copy of an analysis of the water.

Respectfully.

C. O. PROBST,
Secretary.

REPORT ON ADDITIONAL WATER SUPPLIES FOR XENIA.

To the State Board of Health.

GENTLEMEN:

Your committee begs to submit the following report on additional water supplies for Xenia, with the recommendation that these supplies be disapproved, except on conditions named herein.

In 1887 the city of Xenia contracted with a company to furnish water for fire and domestic purposes. A twenty-five years' franchise was granted to the company, the city having the privilege of purchasing the works at the end of ten years. Water at first was taken from springs, located about one and one-half miles west of the city. The water was collected in a shallow reservoir or basin, with earth sides and bottom.

The quality of this supply appears to have been fair, except for the luxuriant growth of algæ in warm weather. A few years after the introduction of this supply, the reservoir was enlarged, and a dividing wall of stones and gravel, six or eight feet wide at the top, was placed in it. An iron pipe, controlled by a valve on the dividing wall, connects the two reservoirs. Each reservoir is also directly connected with the pumps.

It is claimed that only water from the east reservoir is pumped to consumers, except in case of fire, the west reservoir being held solely for such an emergency. The east reservoir, it is stated, has been, until recently, supplied solely by springs, an encircling carrier ditch cutting off all surface water. The west reservoir is filled by pumping from a well house, which receives water from an old mill-race fed by Oldtown creek. Also water from the same source used for the steam condensers, and surface water from adjacent land.

Still another source of supply has been recently added, and requires approval of this Board. This comes partly from some springs at the foot of hills about 1,000 feet from the reservoir, being conducted to the well house spoken of by porous tile, the joints of which are not cemented. This line of tile passes through swamp land, which undoubtedly contributes a part of the supply.

Oldtown creek is a small stream flowing through this same swamp, and through pastures containing many cattle. There is also a large dairy on the banks of the stream less than two miles above the reservoirs. The water of this creek is totally unfit for drinking purposes, without proper purification. All the water in the creek was flowing through the old mill race. Very little water was flowing in the race below the pump well, so that practically all of Oldtown creek was being pumped into the west reservoir, except as hereafter noted.

The water in the two reservoirs appeared to be at the same level.
[illegible] appearance, that in the east reservoir being clear,
[illegible]oir was turbid. The water doubtless passes

freely from the west to the east reservoir through the dividing wall, which would remove much of the suspended matter without purifying the water to any great extent, from a sanitary standpoint.

Another source of supply remains to be mentioned, and one which the Board is asked to approve. What is called a well has been dug a short distance from the pump well spoken of. This well is more in the nature of a reservoir, being about twenty-two feet deep, and thirty-five to forty feet wide and sixty to seventy feet long at the top. The sides are sloping and are lined with rubble work. Some springs at the bottom of this well or reservoir, form part of the supply, but a considerable stream of water was flowing into it which was said to come from the springs which have been spoken of as being connected with the open jointed tile drain. It was found that most of this water was in fact coming from Oldtown creek, and by a very ingenious arrangement.

The open jointed drain tile coming from the springs discharges into a small well hole, a few hundred feet east of the pump well which gets water from the mill race. One pipe leads from this small well hole to the pump well and another from the well hole to the new large well, or reservoir, just described. The pipe line from the well hole to the pump well is so nearly on a level, that a few inches of head will enable water to flow through it in either direction. Water would flow from the mill race into the pump well, and when the pumps were not going would flow into the well hole, and from there into the new reservoir. By stopping the well from the well hole to the new reservoir, water from springs, reaching the well hole by the tile drain, will flow to the pump well when the water is lowered in it by pumping. Or, by stopping the pipe connecting the well hole and pump well, the spring water will flow into the new reservoir.

Very little water was coming from the springs, and the new reservoir was being filled by water from the mill race in the roundabout way described. Water from the reservoir, or well as it is called, is pumped to the east reservoir, the one supplying water to consumers.

A well 150 feet deep, was drilled near the new reservoir, but very little water was found. Another well is being drilled in a new locality, but is not yet ready for inspection.

September 16, 1895, one of us (Dr. Stanton) visited Xenia and while there collected a sample of water from the pump well and another from a hydrant connected with the main pipe to the city. These were submitted to Prof. C. C. Howard for examination, who reported as follows:

September 23, 1895.

DR. C. O. PROBST, Secretary of the State Board of Health:

DEAR SIR: The two samples of water received from Xenia have been submitted to a sanitary analysis by myself with the following results:

Parts per 100.000.

	"Well"	"H"
Appearance—		
Turbidity	None.	None.
Sediment	Considerable.	Slight
Color	.2	.0
Oxygen Required	.248	.120
Free Ammonia	.0732	.0122
Albuminoid Ammonia.	.0184	.0096
Nitrogen as Nitrites	.0015	.0015
Nitrogen as Nitrates	.1480	.2180
Chlorine	13.5	.27
Total Solids	55.1	36.0
Temporary Hardness	27.5	30.8
Permanent Hardness,	2.1	3.1

Full information as to the source of these waters is desirable before interpreting these figures, "H" might be accepted though doubtful in some respects, but the evidences of contamination in "Well" are so direct that it must be regarded as a bad water.

Yours truly,

CURTIS C. HOWARD.

During our recent visit a sample of water was taken from the new well or reservoir. Prof. Howard reports on this sample as follows:

November 11, 1896.

DR. C. O. PROBST, Secretary of the State Board of Health:

DEAR SIR: The sample of water received from Xenia November 8th has been submitted to a sanitary analysis by myself with the following results:

Parts per 100.000.

Appearance—	
Turbidity	Very slight.
Sediment	Slight.
Color	.1
Oxygen required	.344
Free ammonia	.0110
Albuminoid ammonia	.0192
Nitrogen as nitrites	.0033
Nitrogen as nitrates	.1125
Chlorine	.126
Total solids	35.6
Temporary hardness	29.6
Permanent hardness	4.1

The first five numbers as representing the oxygen required to oxidize organic matter and the nitrogen as a particular constituent of animal matter in its various forms of combination are all so high as to be inconsistent with even a fair degree of organic purity. The source and history of this sample are entirely unknown to me but the assertion may be ventured that diligent search will show the cause for these

high figures for nitrogenous matter. The chlorine is so low as to exclude contamination from vault contents. The water is not particularly hard as well waters go and a considerable proportion of the hardness is temporary, that is, removable by boiling.

Yours truly,

CURTIS C. HOWARD.

The superintendent of the Xenia Water Company, Mr. G. F. Cooper, in a letter to Dr. Stanton, under date of November 9th, admits that water was being used from the race way when we were there, and that some water from the same source had been taken at various times before.

It is in our opinion, a bad arrangement to have a supply of water for emergencies (fire purposes) which it would be dangerous to drink. First, because in case of shortage of good water bad water is liable to be used to make up the deficiency; and second, because when fires occur consumers have no choice but to drink polluted water.

We have the following recommendations to make:

1st. That the proposed additional supplies (springs and new well or reservoir) be disapproved unless all connections for Oldtown creek water either for domestic or fire purposes—are cut off and it be made impossible to use this supply.

2d. That the open jointed porous drain tile now used for conveying water from the springs be replaced by a water tight conduit, either iron or vitrified pipe with cemented joints carefully laid to prevent settling and breaking of joints.

We would suggest that there would be many advantages to the citizens of Xenia in owning the water works; and that it will probably be found necessary to seek an entirely new source of water supply in the near future.

A copy of this report was sent to the Water Works Board of Xenia and following that a number of driven wells were put down for increasing the water supply. Dr. Stanton inspected these wells and reported as follows:

Having been appointed to inspect a number of driven wells in the vicinity of Xenia that are proposed as sources of water supply for that city, I would respectfully report that I visited that place on March 14th and first inspected a well near the corporation line and fifty feet east of the Little Miami railroad and about one thousand feet south of the depot. The well is forty-five deep and passes through a stratum of clay soil five feet deep, then a stratum of gravel four feet thick, a stratum of clay two feet, gravel three feet, clay six feet and then a stratum of water-bearing gravel.

The surface of the ground at the well is lower than the higher parts of Xenia, but higher than the stream running through the city near the depot. There are no houses near the well. There is a slaughter-house about 700 or 800 feet south of the well, but it is on lower ground and the

water from it runs into a ravine which runs in an opposite direction from the well. This well I have designated as "Well A." and an analysis of the water accompanies this report.

Another well, designated by me as "Well D,", is in the basement of the Oldtown mill, three and a half miles north of Xenia. It is but thirteen feet deep from the cellar bottom, is between the race which supplies the mill with water from the Little Miami river and Massie's creek—twenty feet from the former and about one hundred and sixty feet from the latter. The water comes from a stratum of gravel five feet deeper than the bottom of the race. This well has been in use a number of years and it is believed an abundant supply of water can be had at this point.

Two other wells were visited by me about half a mile from Oldtown mill. They are in a swampy flat about a quarter of a mile wide extending along the Little Miami river for three or four miles. One was a well driven to a depth of one hundred and fifty feet through strata of alluvial soil, coarse gravel, sand, clay, and hardpan, but at the time of driving the well they were unable to get the water to the surface by means of the appliances at hand and it was soon after filled up with stones and sticks by some evil disposed person and had been abandoned.

The next well was in swampy ground and was but twelve feet deep. The water had a bad taste and I did not think it worth while to have it analyzed.

As the chemical analysis of the water from "Well A" and "Well D," reports of which accompany this, show them to be satisfactory waters, I would recommend the approval of these sources of supply for Xenia.

Respectfully,

BYRON STANTON,
C. O. PROBST,
Committee.

COLUMBUS, March 18, 1896.

DR C. O. PROBST, Secretary of State Board of Health:

DEAR SIR: The two samples of water forwarded from Xenia by Dr. Stanton have been submitted to a chemical analysis by myself with the following results:

Parts per 100,000.

	"A"	"D"
Appearance—		
Turbidity	None.	None.
Sediment	None.	None.
Color	.0	.0
Oxygen required	.092	.128
Free ammonia	.0014	.0018
Albuminoid ammonia	.0022	.0090
Nitrogen as nitrates	.0000	.0000
Chloriue	.84	.22
Total Solids	42.1	34.0
Temporary hardness	26.5	24.4
Permanent hardness	10.9	4.9

and the appearance of the run decidedly bad. The open ditch receiving sewage was also in a bad condition.

Another cause for complaint is the catch basins. These are untrapped, and as the sewers are not ventilated, having no opening except at the catch basins, and into some cellars, the foul gases come out at street corners and are a source of much annoyance. As stated, some of the cellars have openings into the sewer; that is have cellar drains which are untrapped. Offensive gases therefore often escape into the houses.

Matters recently reached a climax on account of several large cess-pools having been connected with the sewers, and a conflict arose between those opposed to such use of the sewers and those already enjoying such privilege.

I met the council and the leaders of the opposing factions, in the mayor's office, where the situation was freely discussed. I opposed the use of the present sewers for any purposes except storm water and cellar drainage, and pointed out the dangers of permitting cess-pools and water closets to drain into them. In reply to a direct question as to what action council should take, I recommended that an ordinance be passed directing property holders to cut off all connection with the sewers except for cellar drainage, and to prohibit their use for any other purposes except storm water. The question of a proper system of purely sanitary sewers, and the disposal of sewage, which will be required there was discussed, and the council was urged to provide for such a system as the only solution of the problem which confronts them. I was informed that the county surveyor had already been engaged to prepare plans for a sewerage system, but had not yet made a report.

Respectfully,

C. O. PROBST,
Secretary.

REPORT ON PROPOSED SEWERAGE SYSTEM FOR CHILLICOTHE.

To the State Board of Health.

GENTLEMEN:

On December 5th by invitation of council, I visited Chillicothe to consult with the members of the committee on sewerage in regard to a sewerage system for that city. Chillicothe has had water works since 1887, but is entirely without sewerage, privy vaults and cess-pools being universally used. It is proposed to adopt a separate system of sewerage calculated to serve the whole city, but to build only a part of it at the present time. The main question is where to secure an outlet. It is proposed, if the State Board of Health will consent, that this shall be at

the foot of Hickory street. This is just above the Scioto Valley railroad bridge over the Scioto river and is near the middle of the city. There are very few houses, however, on the river bank below this point. Just below the bridge there is constantly a large body of water, never less than nine or ten feet deep, and extending down the river for more than a mile. It is proposed to conduct the sewage in an iron pipe below the bridge and discharge it into the river by means of a submerged outlet. Near the foot of Hickory street is an island of sand and gravel which is possibly large enough to filter the sewage. The district is subject to overflow and could not be depended on for this purpose at all seasons. If this outlet can not be used it will be necessary to construct a trunk sewer about two miles in length, which would discharge into the river below the city. This would greatly increase the expense, and it is urged would likely defeat a proposition for sewerage.

I stated to the committee that it was possible the Board might approve of a temporary outlet at Hickory street, if it were agreed to discharge the sewage at some more favorable point within a definite period. I advised them to secure the services of a competent sanitary engineer, and have him prepare plans to be submitted to the Board at its meeting January 29.

At a meeting of the Board held January 30, the following petition was presented by a committee from Chillicothe.

CHILLICOTHE, O., January 30, 1896.

To the Honorable, the Members of the State Board of Health:

GENTLEMEN: The undersigned, members of a special sanitary committee, of the city council, of the city of Chillicothe, Ohio, to whom has been referred the matter of the construction of a system of sanitary sewers for the city of Chillicothe, Ohio, respectfully represent to your honorable body the following:

Said city of Chillicothe, Ohio, has a population estimated at about 15,000 inhabitants; the city council of said city contemplates the construction of a system of sanitary sewers by dividing said city into sewer districts and sewering such districts, from time to time, as the needs and wants of the people may require.

Submitted herewith you will find a complete map of the city of Chillicothe, Ohio, showing the several streets, alleys, public grounds, etc., of said city; also the elevations or grade lines of the several portions of said city; that portion of the city which the city council at this time contemplates sewering, is indicated by the red lines on said city map and is intended to be Sewer District No. 1, and will be constructed on the following streets, to-wit: West second street, 800 ft.; Paint street, 1,800 ft.; North Market street, 100 ft.; East Second street, 600 ft.; Mulberry street, 450 ft.; Main street, 2,200 ft.; Hickory street, 2,000 ft.; in all 7,950 ft., or 1½ miles.

After a careful investigation and mature consideration, the committee has decided that in the interest of health and economy, the most practical outlet for said sewer system, would be into the Scioto river about 600 feet east of Hickory street through a submerged pipe.

The river at this point is very deep and wide, and during the entire year has a strong current; at no season of the year is there less than from fifteen to twenty feet of water at this point, as well as also for a distance of half a mile east of the same, and west of this point is a riffle with a heavy fall and strong current.

East of the point above indicated, and where said city council is desirous of emptying its sewage, there is scarcely a habitation and there are no persons living on or near the banks of said river who might or could consider the same a nuisance.

The Scioto river empties into the Ohio river at a point about fifty miles south of Chillicothe, and there is no city or village located on said river, which might in the future, desire to secure its water supply from said river.

Wherefore, the undersigned committee, representing said city, prays your honorable body, that it may be permitted to empty its sewage into the Scioto river at a point 600 feet east of Hickory street, through a submerged pipe, as indicated on the map herewith submitted.

Respectfully submitted,

EDW. KERN, Chairman.
W. A. TSCHUNNY,
H. W. CHAPMAN,
ST. BURKLEY,
C. E. TIPPETTS,
Special Committee on Sanitary Sewers.
H. M. REDD, City Engineer.
EDW. U. WIEDLER, City Solicitor.

Mr. Hartzell presented the following resolution which was adopted:

The outlet as proposed is not approved for the following reasons:

1st. The outlet is in too near proximity to the inhabited portions of the city.

2d. No properly drawn plan of the proposed sewer system has been presented to the Board.

3d. No plans have been made for the purification of the sewage.

Respectfully,

C. O. PROBST,
Secretary.

REPORT ON THE CHANGE IN THE SEWERAGE SYSTEM OF CLEVELAND.

To the State Board of Health.

GENTLEMEN:

At the April meeting of the State Board of Health Mr. D. E. Wright, Director of Public Works, and Mr. C. G. Force, City Engineer, of Cleveland, appeared before the Board with plans for a sewerage system for District No. 13, formerly a separate corporation known as West Cleveland. They presented a statement to the Board with reference to the proposed sewerage system.

The action of the Board with reference to this request for approval, and the statement as presented, are as follows:

CINCINNATI, April 22, 1896.

To the State Board of Health:

GENTLEMEN: The city of Cleveland desires to at once construct a system of sewers for what is known as Sewer District No. 13 (formerly called West Cleveland) substantially in accordance with the general outlined plan herewith submitted.

The principal main sewers and intercepters are as follows: A main sewer in Lake avenue, from Highland avenue easterly to the Lake Shore and Michigan Southern Railway; a main sewer along said railway easterly to Lake avenue with other mains and sub-mains and laterals connecting therewith. Also an intercepting sewer along said railway from Lake avenue easterly to Waverly avenue at a point near Cass street, there to connect with the intercepting sewer when built easterly to the final outfall to the eastward of the city as recommended by the Commission of Expert Engineers a copy of their report being also submitted.

There will be an overflow at Waverly avenue at which point the sewage will also be discharged into Lake Erie until the main intercepter is constructed. (The Waverly avenue sewer now discharges at this point.) There will be a storm overflow at the intersection of Lake avenue and the Lake Shore and Michigan Southern Railway, also at what is known as Lower run at Edgewater avenue at its intersections with Lake avenue.

It is also desired to at once begin the construction of the main intercepting sewer, at the easterly end, as recommended by the expert commission; also a sewer in Doan street with an overflow in Doan brook at Wade park and with an overflow into Lake Erie. The sewage and dry weather flow from said Doan street sewer to be discharged into the main intercepter when the same is constructed as far as Doan street.

We also desire to construct a sewer in Walworth Run Valley, the sewage and dry weather flow from which is to be discharged into the branch intercepter near Rhodes avenue, when the same is constructed as far as Rhodes avenue, as recommended by expert said commission, and to overflow into Cuyahoga river only after the intercepters and low level system of sewers, as recommended by the experts, have been constructed.

Respectfully submitted,

(signed) D. E. WRIGHT,
Director of Public Works.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, April 30, 1896.

MR. D. E. WRIGHT, Director of Public Works, Cleveland, Ohio.

SIR: The State Board of Health has considered your application for approval of certain changes in the sewerage system of the city of Cleveland, as set forth in the statement prepared by you, which is given above, and you are hereby notified that said proposed changes have been duly approved by this Board.

Respectfully,

C. O. PROBST,
Secretary.

At a meeting of the State Board of Health held in Cleveland June 18, 1896, a protest filed by the park commissioners of Cleveland against permitting the discharge of storm overflows from the Doan street sewer into Doan brook was heard. After investigation the Board's action in

approving proposed changes in the sewerage system of Cleveland was amended as indicated in the following communication:

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, June 20, 1896.

MR. D. E. WRIGHT, Director of Public Works, Cleveland, Ohio:

DEAR SIR: At a meeting of the State Board of Health held in Cleveland June 18, 1896, it was voted to reconsider the vote approving changes in the sewerage system of the city of Cleveland, as presented to said board April 22d, 1896. It was then voted to approve of plans for changes in the sewerage system of the city of Cleveland, Ohio, as presented to the State Board of Health April 22, 1896, except in so far as they applied to the Doan street sewer.

The following resolution was then adopted:

Resolved, That after further investigation it is the opinion of this Board that the proposed plan for storm overflows from Doan street sewer into Doan brook at Wade park or elsewhere should not be permitted if preventable. Be it further

Resloved, That storm water, where avoidable, should not be carried in sewers; and the authorities of Cleveland are respectfully recommended to use every endeavor to adopt the separate system for the Doan brook district.

Yours truly,

C. O. PROBST,
Secretary.

REPORT ON SEWAGE DISPOSAL FOR THE OHIO STATE REFORMATORY AT MANSFIELD.

To the State Board of Health.

GENTLEMEN:

The Board of Managers of the Ohio State Reformatory have made application for approval of a proposed plan for sewage disposal.

On June 29, I visited the institution and examined the plans and grounds provided for sewage disposal.

The Board of Managers appointed a committee to investigate the question of sewage disposal, and this committee, after a visit to Massachusetts and other New England states, brought in a report enthusiastically recommending the intermittent filtration of sewage.

Mr. John P. Force, of Fostoria, was engaged as consulting engineer and he has prepared plans for disposing of the sewage in the way proposed by the committee. It is proposed to collect all of the sewage—excluding roof water and surface drainage—into a fifteen-inch outfall sewer, which will conduct the sewage to lands about 900 feet from the institution and fifty-five feet below basement level. At this point two filtration beds one acre in area will be built—gravel of excellent quality for filtration of sewage being found in the immediate vicinity. The beds will have five feet of gravel laid on clay, and will be underdrained. The effluent will discharge into Fork cre

by springs and which always maintains a flow of water. Neither this creek nor the larger creek into which it empties is used for a water supply. The plans provide for a screen chamber which will receive more or less sludge. This sludge will be carried to a specially prepared bed where it is designed to have it regularly plowed under. The land adjoining the filter beds is now cultivated and is arranged so that the sewage may be used for irrigation whenever this is desired. The proposed filter beds are over 900 feet from the institution, and are more than that distance from any other habitation.

The managers of the Ohio State Reformatory, in my judgment, are especially to be commended for providing for the disposal of the sewage of that institution. The plan proposed is, undoubtedly, the most satisfactory that could be adopted; and the location of the filter beds, and their proposed arrangement is all that could be desired.

I should say that arrangments have been made to care for roof and surface water by a separate system of sewerage and the filter beds will have nothing but household wastes to care for.

I unhesitatingly recommend that the proposed plans for the disposal of sewage from the Ohio State Reformatory be approved.

Respectfully,

C. O. PROBST, Secretary.

The committee appointed by the Board of Managers of the Ohio State Reformatory to report on a system of sewage disposal for that institution reported as follows:

MANSFIELD, O., June 3, 1896.

To the Board of Managers, Ohio State Reformatory:

GENTLEMEN: Your committee on sewage disposal beg leave to submit the following as a partial report of their investigations as to the best system of disposing of the sewage at the Reformatory.

In order to make an intelligent and satisfactory report, we thought it advisable to visit places where various systems of sewage disposal plants are in operation. For this purpose we visited a number of places in the Commonwealth of Massachusetts, and are pleased to say that we obtained such practical knowledge of the various systems of disposing of sewage, that we feel that the disposal of sewage at the Reformatory will be an easy matter, and at the same time can be made a practical and successful system.

Of the numerous cities and institutions to which we have been referred, where sewage disposal plants are in practical operation, it did not take [illegible] to ascertain that the sewage disposal plant at South [illegible] was the most simple in construction, practical and [illegible]on, of any system known.

[illegible]d in saying this, because the Massachusetts State [illegible] informs us. This Board has taken up the ques-

tion of sewage, with the view of ascertaining what is the best mode and manner of most successfully disposing of sewage. For this purpose they have for years operated an experimental station, and after trying and testing all systems, report that the only successful system of disposing of sewage is intermittent filtration, adding thereto, broad irrigation at times when practical, this being the system at South Framingham, Mass. Hence the Massachusetts State Board of Health referred to this plant, as the best and most successful known. It is so successful that the effluent after filtration is 98 per cent. pure, when it empties from the underground drains.

In fact, we are indebted for a great deal of the information that we received to the officers of the Commonwealth of Massachusetts and especially to the chief engineer of the State Board of Health, under whose supervision the experimental station is operated. We spent considerable time at South Framingham, Mass., investigating in detail their sewage system. Any ordinary person after giving the sewage farm at this place careful examination, will not only say, that it is very simple in construction and operation, but economically practical and complete in every particular. No one needs a sanitary engineer, or other person to tell you this sewage farm is a success, when you are there and observe the same in operation as you can see for yourself, and test it by drinking the effluent as it comes from the underground drain.

South Framingham, Mass., is a city of about 9,000. This sewage farm, not only takes care of the city sewage, but all of the sewage that comes from the Woman's Prison located in the town of Sherborn, just beyond the South Framingham line, having about 365 inmates. This plant purifies from 300,000 to 500,000 gallons of sewage every twenty-four hours, on less than ten acres.

There are three systems of sewage disposal. Chemical precipitation, broad irrigation and intermittent filtration.

Simpson C. Heald, a sanitary engineer of Boston, visited Europe for the sole purpose of ascertaining the best and most practical system of disposing of sewage; and after his return planned and supervised the construction of the South Framingham, Mass., sewage disposal system.

In his report on his return from Europe, Heald says, that from personal investigation of chemical precipitation systems and broad irrigation and intermittent filtration systems, he found that the chemical system was a failure, compared with the other systems. And while the chemical system was not near so successful as the others yet it was much more expensive in construction as well as in operation.

The chief engineer of the State Board of Health of Massachusetts informs us that the same is true in this country, comparing Worcester, Mass., and Canton, Ohio, where the chemical system is in operation, with South Framingham, Mass., and many other cities and institutions where other systems are in operation. In fact this S

Massachusetts, which has spent a great deal of labor and large sums of money experimenting on this subject of sewage disposal, recommends no other system but intermittent filtration or broad irrigation. In fact they condemn the chemical precipitation system as being impractical, unsuccessful and very expensive in construction and operation.

It is claimed that "land is a natural filter and when sewage is distributed over a large area of it, and the fertilizing ingredients of the sewage utilized so as to produce the greatest return in marketable crops, consistent with suitable purification of the sewage, the application is known as broad irrigation." When the sewage is applied intermittently in as great a volume as can be properly absorbed and purified by the land used, and while not necessarily excluding vegetation, yet making it a secondary consideration to our purification of the sewage, the process is known as intermittent filtration."

Berlin with a population of over 1,300,000 disposes of the sewage on about 4,000 acres, by the systems above referred to.

It may be claimed that the sewage cannot be filtrated in winter when the ground is frozen.

The superintendent of sewage in Berlin reports, that they have turned sewage onto fields where the ground was frozen to a depth of twenty-three inches, and also onto fields covered with ice, the result being that the sewage was sufficiently warm to thaw the ground, and by cutting holes through the ice, the sewage would find its way under and lift it up.

This principle was also demonstrated at South Framingham, Mass., where, on a filter bed containing about one acre, frozen to a depth of about eighteen inches, and with ten inches of snow upon it, 300,000 gallons of sewage were pumped in one day, when the thermometer was at six degrees below zero, the sewage having thawed the ground, and the effluent appearing in the under-drains within six or eight hours after application.

Dr. Frankland, of London, England, from actual experiments made by him to ascertain the capacity of soils for the purification of sewage says: "An acre of suitably constituted soil, well and deeply drained, with its surface level, and divided into four square plots, each of which in succession receiving the sewage for six hours, would purify the sewage for about 3,300 persons."

J. Bailey Denton, with ten years experience in intermittent downward filtration says: "One acre of land will accommodate and take care of the sewage from 1,000 to 1,250 persons in twenty-four hours, according to soils and conditions."

The State Board of Health of Masssachusetts has demonstrated at its experimental station, that one acre of land will purify from 30,000 to 40 [illegible] llons of sewage in twenty-four hours, according to conditions [illegible] nt.

It is estimated that the sewage flow, from an institution or city, to be taken care of will be about one hundred gallons a day per capita. This institution with four hundred inmates, would produce daily about 40,000 gallons of sewage.

On June 2, we carefully examined the land across the railroad from the institution, and find that filtration beds can be easily secured, and be built at very little cost, and that the soil is very favorable for filtration as it is very sandy and gravelly. In fact the soil is similar to the soil at South Framingham, Mass. The topographical situation and lay of the land is such that the entire sewage disposal system can be built cheaply. The only thing that will necessitate some extra expense is that the main sewage pipe will have to be carried across the ravine on a trestle to the north side of the branch. The distance from the institution to the filtration beds will be about twelve hundred feet.

The sewage disposal plant can so be built, we think, that almost the whole farm can be irrigated with sewage when desired, and especially can the sewage be run on this land in the winter time, which will be of great benefit to the land as a fertilizer.

We have no hesitancy in saying that one acre of land divided into two beds of one-half acre each, properly built and under-drained, will take care of all of the sewage of the institution, at least until there are more than four hundred inmates.

A sixteen to twenty inch sewer from the railroad to distributing tank, to hold about 2,000 gallons, and located near the filtration beds, will be abundantly large. In fact larger than at the places visited by us.

One of the great advantages at this institution in the construction of a sewage plant, is that no pumping station is needed, as the sewage can be carried from the institution to the filtration beds by gravitation.

We are satisfied that a system of sewage disposal for this institution should be constructed on the plan of the South Framingham, Mass., system.

We therefore recommend that an intermittent filtration sewage disposal system for the reformatory similar to the one at South Framingham, Mass., be built with the addition of such broad irrigation as is practical and will be advantageous to the farm.

We are satisfied that the entire system can be built at a cost not to exceed $3,000.

For the purpose of having the proper surveys and plans made, and the system carefully and practically built, we recommend the employment of a good, practical sanitary engineer.

We further recommend that this engineer so employed make a topographical survey of that part of the farm that may be reached from the main sewer and the disposal beds by broad irrigation.

Respectfully submitted,

S. P. WALCOTT,
L. F. LIMBERT,
Committee.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, July 30, 1896.

Board of Trustees, Ohio State Reformatory, Mansfield, Ohio:

The State Board of Health has considered your application for approval proposed for disposing of the sewage of the Ohio State Reformatory by intermittent filtration, and I have the honor to inform you that said plans are approved.

Enclose for your information a copy of the report on the proposed disposal which was adopted by the State Board of Health.

Respectfully,

C. O. PROBST,
Secretary.

REPORT ON SEWERAGE SYSTEM FOR MARTIN'S FERRY.

State Board of Health.

GENTLEMEN:

I was notified by the health officer of Martin's Ferry that the city council had passed a resolution requesting immediate action on the part of this Board in approving the outlet of a proposed sewerage system for that city.

I visited Martin's Ferry June 17th, and desire to report as follows:

Plans, which I will present, for a complete sewerage system were prepared in 1893. A part of the system has been built, but no outlet has been provided for some of the sewers and the property holders on such sewered streets have refused to pay their assessments. The matter has been allowed to drag along in this way, the city paying interest on the bonds issued to build these sewers. It is now proposed to commence work at once on an outlet sewer if the approval of this Board can be secured.

The outlet originally planned, as will be seen on the map, is into the Ohio river near the lower end of the city. At this point there is a large flow of surface drainage from the city

and adjoining land, and which passes to the river through a three foot culvert, under the tracks of the C. & P. Railway. In heavy storms the culvert has proved too small, and the bottoms are overflowed. When the Ohio river is in flood the water pours back through the culvert and overflows the valley. The original plan was to enlarge this culvert, or rather to put in a brick sewer 6x4 feet. Later it was proposed to save the expense of this brick sewer and discharge the main sewers into the ditch which enters the culvert. This culvert ends at the river bank, and if this plan were followed the sewage would be carried in an open ditch for some distance before it would reach the river.

The sewer committee of council, who have recently gone over the ground, report in favor of having the outlet sewer on Monroe street, which is two streets up the river from the outlet spoken of; and both outlets are submitted to the Board for approval of the one considered most favorable. This outlet sewer is calculated to care for sewage from districts, 1, 2, and 3. Districts 4, 5, and 6 each have a separate and independent outlet. Districts 2, 3, and 4 embrace most of the city. Part of sewer district No. 4, including the outlet, has been constructed. This outlet sewer discharges on Carlisle street. The residents of districts 2 and 3, tired of waiting for the main outlet sewer to be constructed, have succeeded in getting council to put in outlet sewers in Walnut and Jefferson streets. These sewers do not as yet carry much sewage. Owing to surface configurations it is impractible to discharge all the sewage at one point without pumping.

Before discussing the location of the new main outlet sewer some general consideration should be presented.

Martin's Ferry is a city of about 8,000 inhabitants. Immediately below it on the Ohio side is Bridgeport, a city of nearly equal size. A little below on the West Virginia side of the river is Wheeling. Wheeling Island divides the river into two channels. This is quite a long island, extending below Bridgeport and the head of it reaches to the lower part of Martin's Ferry.

A bar at the head of the island, in extreme low water, extends nearly to the upper point, Monroe street, where it is proposed to discharge the main sewer. The main channel of the river is on the West Virginia side. At the foot of the island, on the Ohio side, the National Government has constructed a dam to increase the flow in the main channel. At a low stage of the river no water flows over this dam and there is still water on the Ohio side of the island.

Seven miles below Martin's Ferry is the city of Bellaire, having about 12,000 population.

Martin's Ferry obtains its water supply from the Ohio River some distance above the highest proposed outlet sewer. Bridgeport gets water from the same source, having a ten year's contr[illegible] to furnish them water. Five years of the ti[illegible]

Wheeling has lately located a pumping station on the river about 2,000 feet below the highest point of sewage discharge in Martins Ferry, which is from sewer district No. 6. It should be said that this district will not be sewered, in any likelihood, for many years to come.

Bellaire takes water from the Ohio River, and is the only city likely to be affected by the sewage of Martin's Ferry. Bridgeport, however, and Wheeling, both much nearer Bellaire, are already discharging their sewage into the Ohio River.

The main outlet as originally planned is objectionable for several reasons. First, even if a 6 x 4 ft. sewer is constructed it is very doubtful if it would carry off all the storm water of the valley in which it is located. This would cause a backing up of sewage or an overflow of storm water and sewage over the valley. The same conditions would occur whenever the Ohio river is in flood. Second, damage from washouts, during heavy storms, which the railway company is now probably responsible for, might have to be paid by the city. Third, this point is below the head of the island in low water, and there is greater liability of a nuisance. The modification of this plan, using the existing culvert for a main sewer, simply increases the weight of these objections, and in addition would leave an open sewer for considerable distance with a discharge into stagnant water, which would almost surely create a nuisance.

The Monroe street outlet is freer from objection, and especially if a submerged outlet extending a hundred feet or more into the Ohio river is adopted. But even this, in the ordinary stage of the river, will not prevent much of the sewage finding its way into the usually stagnant water between Wheeling Island and the Ohio shore. As there is always considerable water here it is not probable that a nuisance will be created.

As to purifying the sewage there appears to be no favorable place for its filtration. By pumping, chemical precipitation could be used, but only at a cost which would probably stop all plans for sewerage, and as this system only removes about 50 per cent. of organic matter, on an average, and has little or no effect on disease germs in the sewage, it is not, in my judgment, to be recommended in this case.

I desire, however, to recommend the Board's approval of an outlet sewer for sewer districts 1, 2, and 3, at or near Monroe street with a submerged outlet to extend at least 50 feet from shore line at lowest water. Also that outlet sewers for districts 4, 5, and 6, as shown by the plans, be approved.

Respectfully,

C. O. PROBST,
Secretary.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, June 19 1896

DR. I. W. DARRAH, Health Officer, Martin's Ferry, Ohio.

DEAR SIR: The State Board of Health has considered your application for approval of a system of sewerage for the city of Martins Ferry, with outlets into the Ohio river at various points along the city's front. At a meeting held in Cleveland June 18, 1896, it was voted to approve of the outlet sewer for sewer districts 2, and 3, at or near Monroe street, with a submerged outlet to extend at least 50 ft from shore line at lowest water.

Also four outlet sewers for districts 4, 5, and 6 as shown on plans submitted to the Board for approval.

Yours truly,

C. O PROB[illegible]
Sec[illegible]

REPORT ON SEWERAGE AND WATER SUPPLY OF PUT-IN BAY.

To the State Board of Health.

GENTEMEN:

On July 1-3, at the request of the secretary of the Board, and formal complaint from other parties, I made an examination into the sewerage and water supplies for the two large hotels at Put-in Bay, and incidentally into the sanitary condition of the island.

The new "Victory" hotel obtains all its drinking water from a well sunk 170 feet through stone. This well is situated in the center of the court and away from all contamination, so far as surface conditions are concerned. The water is so abundant that, during the construction of the hotel and all adjoining buildings, no other water was used except by the masons, brick-layers and plasterers. It is called an "Artesian" well, but the name is not proper, since the water must be brought to the surface by means of a pump. The well is piped down to the depth of sixty feet.

For bathrooms and laundry, water is obtained from Lake Erie. The pipe for the inlet is carried 180 feet into the lake and into deep water. The sewer system is modern and satisfactory, except as to the outlet. A complex system of pipes collects all waste waters from closets, bath rooms, laundry and kitchens and conducts it to a very large cess-pool. These pipes are flushed every thirty minutes from three flushing tanks, each discharging 75 gallons. The cess-pool is simply a vat or tank where the more solid matters from kitchen and closets may be collected and removed to the land at a safe distance from the building. The more fluid portions of the collections pass out from the pool through [illegible]

iron pipes, with perfect joints, to a point more than 200 feet from the lake shore, and at a point as far away from the intake of the water (for laundry and bathroom) as possible. The originators of the Victory hotel project have expended much time and money in these arrangements, and further expressed themselves as intending to adopt some system of sewage disposal as soon as their financial condition would allow.

The case of the Beebe House is a puzzle. The proprietor claims that he has never had a case of typhoid fever in his house. Everything about the house, grounds and outbuildings is in perfect order. The place is suggestive of rest and perfect health, and yet it seems to me that it is only by chance that the hotel has not been visited by an epidemic of typhoid.

The following diagram will give you an idea of the conditions so far as sewage outlet and water intake are concerned:

"A" represents a wharf in front, and just across the street from the hotel. It is in part made ground, in part open crib-work. "X" is the present end of the intake pipe. Material is on the ground for extending this pipe 60 feet further into the lake.

"B" represents a low, flat dock filled with water plants, mud and broken stone. It is at the present time so filled up that not even a row-boat could be taken through it.

"C" is the outlet to the hotel sewer. At and near the mouth there is a mass of black mud covered by thick, green slime. The very sight of the place is enough to condemn it.

I can see nothing to prevent the sewage that finds an outlet at the point "C" from working its way to the point "X" where all the water used in the hotel is obtained. The distance around the wharf would be less than 250 feet, while the direct line through the wharf would be only 180 feet. Inasmuch as the sewer and water pipes at the Beebe House have been in place for more than a quarter of a century, we may well doubt the character of the work. The relation of the Board to the matter is not so clear. The law should give us authority to correct such palpable infractions of sanitary methods, but does it?

Within a few hundred feet of the Beebe, and that much nearer the boat landing, a new building has just been erected. It is partly on land and in part built over the water. All drainage from it will be directly into the lake and at the point on the shore most visited by excursionists This building is to be used for saloon and kindred purposes.

Almost touching this site is the point where a public water supply is obtained. The time at my disposal would not suffice for a complete investigation as to the extent to which this water is used for drinking purposes on the island, but all information was to the effect that the use was a general one. Here, as in the case of the Beebe House, the real authority of this Board may be a subject for discussion. The supply of water has been obtained from this point for many years. The new

building will not have connections with any sewer system, but it will evidently be a source of danger to the water supply. It is to be hoped that the influence, if not the authority, of the Board may bring about a better state of things along the front of Put-in Bay, one of the most popular of our Ohio lake resorts.

Respectfully,

E. T NELSON,
Committee.

REPORT ON PROPOSED SEWERAGE FOR SIDNEY.

To the State Board of Health.

GENTLEMEN:

Having been appointed by the President to inspect and report upon the proposed sewerage plans for Sidney, I would respectfully submit the following:

The proposed sewer will discharge into the Miami river about seven thousand feet from the principal street and about one-half mile from the corporation line. At the point of discharge there is a constant flow of water at all seasons of the year.

The proposed plan contemplates the separate system for the city with the exception of the part near the public square, where provision is made for taking the storm water from an area of about ten acres.

It is estimated that the dimensions and grade of the sewer are such that it will suffice, when flowing half full, for a population of ten thousand persons, or at its maxmum, for twenty thousand.

The sewer is to be vitrified sewer pipe, the main, for a distance of 3,900 feet from the point of discharge, to have a diameter of twenty-two inches, and for a distance of 2,725 feet, of eighteen inches. The branches will be fifteen, twelve, ten, eight and six inches. The entire length of sewer will be 43,140 feet.

The flushing will not be automatic, but will be by direct connection with the water mains—four inch connections for the laterals and larger connections for the larger sewers. The main sewer, for 3,900 feet from the outlet, will be flushed by means of a ten inch pipe from the Miami river above the dam. The sewer will be ventilated by perforated manhole and lamphole covers.

The system is arranged, and the outlet is favorably situated for any kind of purification should that be required.

I would recommend that the proposed plans be approved on condition that the city of Sidney will agree to purify the sewage in a manner satisfactory to the State Board of Health should the discharge of raw sewage into the river create a nuisance.

I desire to express my thanks to Mr. Ben Coulson, engineer in charge, to Dr. Edwin LeFevre, health officer, and to Messrs. J. C. Royan and Walker Stowell, committee of council, for assistance in making the inspection.

Respectfully,

BYRON STANTON,
Committee.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, February 26, 1896.

MR. BEN COULSON, City Engineer, Sidney, Ohio:

DEAR SIR: The application for approval of system of sewerage for the city of Sidney, has been acted upon by the State Board of Health. I enclose herewith a copy of the report prepared by Dr. Stanton, special committee, and which has been submitted to the State Board of Health and approved by that body subject to the conditions named in the report.

Before proceeding with your sewerage system it will be necessary for the proper authorities of your city to sign their agreement to said conditions.

Yours truly,
C. O. PROBST,
Secretary.

REPORT ON SEWERAGE FOR TOLEDO.

At a meeting of the State Board of Health held in Columbus January 29, 1896, the following request for approval of plans for sewering Auburndale and Sewer District No. 25, of Toledo, were represented:

COLUMBUS, January 29, 1896.

TO THE HONORABLE STATE BOARD OF HEALTH, State of Ohio:

GENTLEMEN: In compliance with your request of this P. M., would say the points we desire to call your attention to are as follows:

First—The city of Toledo is a city of the first class, third grade, and under the statutes has no authority to appropriate lands for the purpose of sewage purification.

Second—If the city had the power to appropriate lands for sewage purification it has no authority to pay the cost of the same out of the city funds or to assess the cost thereof on the property in the district or districts benefited.

Third—Toledo cannot assess the cost of the construction of more than one sewer system upon the property benefited. Thus it follows that it would be impossible to assess the cost of both storm water and house sewers.

Fourth—The general fund of the city of Toledo is not in a condition to pay for the cost of either one of the two systems.

Fifth—In the portion of the city now sewered the entire cost of constructing sewers in each district has been paid by assessments upon the property in the respec-

tive districts, and the property owners in such districts object (as we think rightfully) to paying a part of the cost of constructing sewers in other districts.

Sixth—Ottawa river, into which we desire to discharge the sewage as shown on the plan in your hands, is a stream already contaminated. There is one sewer already emptying into the same, and the outlet of the proposed sewer is some six miles, following the meanderings of the stream, from the Maumee river. Ottawa river empties into the Maumee river about ten miles below the city water works, and between these points there are a number of sewers emptying into the Maumee river.

Seventh—It is proposed to construct this sewer so as to empty its contents into Ottawa river at a point below where there is running water at all seasons.

Respectfully submitted,

WM. G. CLARK, City Engineer.
C. F. WATTS, City Solicitor.

It was voted to approve the plans for sewer district No. 25, and to disapprove the plans for Auburndale.

At a meeting of the State Board of Health held in Lima, October 22, 1896, a request for approval of sewerage for districts numbers 26 and 27 of the city of Toledo was presented as follows:

TOLEDO, OHIO, October 21, 1896.

TO THE HONORABLE STATE BOARD OF HEALTH:

GENTLEMEN: In behalf of the the city of Toledo, request is hereby made to your honorable body for the approval of plans for, and permission to construct sewers in sewer districts numbers 26 and 27, as shown by the plans before your Board, as follows:

For sewer district No. 27, a system of house drainage or sanitary sewers with the outlet sewer in Valley Street.

For sewer district No. 26, a combined system of sewerage with the outlet in Third Avenue.

For sewer district No. 26, a separate system of sewers comprising first, a system of sanitary sewers for house drainage, and second, a system of storm water sewers for street and lot drainage, the outlets both being in Third Avenue.

It is proposed that these sewers shall for the present, and until such time as your Board shall require other disposition to be made of the house sewage, or until disposal works or a system of intercepting sewers shall be constructed by the city, drain into Ottawa River or Ten Mile Creek.

The outlets of both the sanitary sewers will be at sufficient elevation to permit of the sewage being taken to a point west of Auburn Avenue and there disposed of either by precipitation or filtration without pumping.

Awaiting the action of your Honorable body, we remain,

Very respectfully yours,

WM. G. CLARK,
City Civil Engineer.
F. W. RAKESTRAW,
Special Committee.

It was voted to approve the plains as presented, but only as a temporary expedient as regards the location of outlets of the sewers.

REPORT ON SEWERAGE SYSTEM FOR WILLOUGHBY.

To the State Board of Health.

GENTLEMEN:

At the last meeting of the Board the village of Willoughby presented plans for a sewerage system with an outlet into the Chagrin river three or four miles from its mouth. It was decided to require purification of the sewage.

The authorities of Willoughby have again brought the matter before the Board. It is claimed, first, that to insist on purification of the sewage at this time means to defeat the construction of sewerage which is badly needed, as the village has a public water supply which has greatly increased the amount of waste water to be gotten rid of. And, second, that the public health will not be injuriously affected, at least for the present, by permitting raw sewage to be discharged into the Chagrin river, as proposed. Mr. Hartzell and the Secretary were appointed to make an investigation of the situation, and visited Willoughby on July 25th, 1896. The Chagrin river was inspected from the point where the outlet sewer is planned to discharge into it to its mouth. There are no houses near this part of the river, and it is not used for domestic purposes, nor for watering stock. The nearest town on Lake Erie which could be affected by sewage from Willoughby (through its water supply) is Painesville, which is ten miles from the mouth of Chagrin river.

While admitting fully that raw sewage should not be turned into lakes or rivers, where avoidable, we are of the opinion that for the present no special harm is likely to result from permitting Willoughby to discharge sewage into the Chagrin river, as proposed; and we therefore recomend that the plans be approved, subject to the condition that the proper authorities of Willoughby will agree to purify the sewage in a manner satisfactory to the State Board of Health, and whenever demanded by said Board, cause for such purification being shown.

Respectfully,

JOSIAH HARTZELL,
C. O. PROBST,
Committee.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, AUGUST 3, 1896.

Mr. J. B. STRAWN, Consulting Engineer, Salem, Ohio:

DEAR SIR: The State Board of Health has reconsidered your application made on behalf of the village of Willoughby to approve the plans for sewering said village, including the discharge of raw sewage into the Chagrin river, and the same have been approved by the Board subject to the following conditions, viz. that the proper authorities of Willoughby will agree to purify the sewage in a manner satisfactory to the State Board of Health, and whenever demanded by said Board, cause for such purification being shown.

You will please make known to this Board whether the conditions are accepted.

Respectfully,

C. O. PROBST,
Secretary.

city. The yards on examination presented a clean appearance, and there were no bad odors observable. I was informed, however, that they had been thoroughly cleaned a few days before, and the surface covered with fresh cinders. No stock had been shipped for a week; and although it was the regular day for shipping when I was there, none was being shipped that day.

The yards consist of two enclosures separated by a driveway for loading stock into the cars. I was informed that the stock, mostly hogs, are usually shipped twice a week during shipping season, and from one to two car loads each shipment. These hogs are brought to the stock yards and are kept in the enclosure until loaded. Hogs are often kept in the yards or in the cars twenty-four to thirty-six hours before removal.

Near the yards is a railway watering tank, and it is customary to wash the hogs in the cars with a stream of water from this tank. This washes on to the ground a considerable amount of filth.

These stock yards have been located here for many years, and have been a constant annoyance and source of complaint to people in their neighborhood. I talked with a number of citizens about the matter, and all condemned the stock yards as a nuisance and thought they should be removed.

Abont five years ago the board of health adopted a resolution declaring these stock yards a nuisance and ordering their use to be stopped. The man who was doing the shipping at that time, it is alleged, was a member of the board of health, but was absent on the evening this resolution was adopted. He returned next day, a special meeting of the board was called, and the resolution was rescinded.

While examining the stock yards attention was called to another matter deserving mention. Near the stock yards the Standard Oil Co. has located storage tanks for coal oil and gasoline. These are large iron tanks holding many thousands of gallons. They are surrounded by buildings of an inflammable character, and are a constant menace to hundreds of people in their vicinity. A city ordinance prohibits such storage, but it is not enforced. (I should have mentioned that there is an ordinance prohibiting the keeping of hogs within the corporation.)

I called on the health officer, Dr. P. H. Aldrich, and questioned him concerning the stock yards. He said they were undoubtedly a nuisance which could only be abated by their removal. He said, which is true, that he could not very well act in the matter until they had been declared a nuisance by the board of health and ordered abated, and promised to promptly carry out such an order as soon as it should be adopted. No formal complaint, he said, had been made to the board of health; and he thought the board would take action to abate the nuisance if the aggrieved property owners would petition to have it done.

In regard to the storage of gasoline and coal oil, he said any person interested in having it removed could easily have it done by making an affidavit before the mayor charging the Standard Oil Company with violating the city ordinance.

I advised Mr. Cunningham and others interested to petition the local board of health to abate the stock yards nuisance and to report if no action was taken by the board. I also pointed out how the petitioners could themselves secure the abatement of the nuisance by the courts, if the board of health failed to perform its duty in the matter.

There appears to be, without doubt, a great nuisance affecting many people, occasioned by these stock yards in Defiance, but until the present local board of health, after a proper petition from aggrieved persons, refuses to abate it, there is no occasion in my judgment, for this Board to take further action in regard to it.

Respectfully,

C. O. PROBST,
Secretary.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
COLUMBUS, June 19, 1896.

To the Board of Health, Defiance Ohio:

GENTLEMEN: I am instructed by the State Board of Health to send you a copy of a report of an investigation of an alleged nuisance in your city, which I made, and to urge upon your board to take immediate action to have this nuisance abated.

Yours truly,

C. O. PROBST.
Secretary.

Miscellaneous.

REQUEST FOR APPROVAL TO ISSUE BONDS FOR STREET CLEANING PURPOSES IN HAMILTON.

HAMILTON, OHIO, March 19, 1896.

To the Honorable State Board of Health, Columbus, Ohio:

GENTLEMEN: The resolution herewith enclosed is a request to the proper authorities of the city of Hamilton, Ohio, to take the necessary steps to clean the streets and alleys of said city.

Under a law governing the city of Hamilton, Ohio, it is not permitted to issue bonds in anticipation of the collection of taxes for street and sanitary purposes without first submitting the matter to a vote of the people. This act repeals section 2700 of the Revised Statutes, but section 8 of said act provides as follows:

"That in cases of epidemic, or when, in the opinion of the board of health of any such city, it is deemed necessary and expedient for the public health and for the preservation of life, and when there are not sufficient funds available with which to put the city in a good sanitary condition, the council of any such city is hereby authorized and empowered to issue the bonds of said city in any amount deemed necessary and to sell them at private sale if the case is urgent; but in no case shall they be sold for less than their par value; provided, however, before any bonds are issued, as authorized in this section, the board of health shall make a written request of the council, stating its reasons for asking the issue of bonds and the amount necessary and said request, before being presented to said council, shall receive the written endorsement of the State Board of Health that said request is necessary and ought to be granted."

Under said section, you perceive it is necessary that the request of the city board of health has the endorsement of your Board before the city can proceed to issue bonds for the prosecution of said work.

The present condition of the streets and alleys of the city of Hamilton, Ohio, demands immediate attention. They have not been cleaned for the last fifteen months, during which time they have been torn up by the construction of storm and sanitary sewers, and left in such a condition that it was impracticable to attempt giving them a thorough cleaning

until now. The past winter has been very soft, and the streets not being paved large accumulations of dirt have gathered upon them in such quantities as to make them dangerous to the public health of the city.

At the present time some typhoid fever and diphtheria exist in the city and it is unnecessary to urge upon your Board the necessity for some immediate action to be taken by the city to put them in a good sanitary condition before warm weather sets in.

The street fund of the city is depleted and before any such work can be prosecuted it is necessary for the city to have power to issue bonds for such work.

As provided by section 8 of said law, we ask your Board to endorse the within written request to the city of Hamilton, Ohio.

Hoping for favorable action, we remain,

Respectfully yours,

THE BOARD OF HEALTH OF THE CITY OF HAMILTON, OHIO,

Attest: J. F. HEATH, Secretary. By PETER A. CLAIR, President.

HAMILTON, OHIO, March 19, 1896.

To the Honorable City Council of the City of Hamilton, Ohio:

GENTLEMEN: At a meeting of the board of health of your city held on Wednesday evening, March 18, 1896, the following resolution and request was formulated:

WHEREAS, Since the last cleaning of the streets and alleys of the city of Hamilton, Ohio, more than fifteen months ago, the streets and alleys have been torn up by the construction of storm and sanitary sewers, which have left large accumulations of dirt that have never been removed from the surface of said streets, and as the streets are now in a filthy condition and no effort is being made by your body to give them a thorough cleaning, for the alleged reason that there are no funds to pay the cost and expense of said work; and

WHEREAS, It is necessary under the provisions of law applicable to the city of Hamilton, Ohio, that before any bonds can be issued for said work a request to do the same must be made by your board of health and approved by the State Board of Health, Therefore

Be it resolved by the Board of Health of the City of Hamilton, Ohio, That in the opinion of said board of health it is deemed necessary and expedient for the public health, and for the preservation of life, and the sanitary conditions of the city, to prevent the spread of contagious diseases, or the possibility of an epidemic, which the present conditions of the streets and alleys makes possible, that your honorable body is hereby requested to give said streets and alleys a thorough cleaning within the next thirty days, and for said purpose issue bonds in the sum of five thousand dollars ($5,000.00) to pay the cost and expense of prosecuting said work.

Adopted March 19, 1896.

Attest: J. F. HEATH, Secretary. PETER A. CLAIR President.

There is one closet in the superintendent's department that has recently been put in which is in good condition.

We recommend that the present closets be removed and that sanitary closets be put on each floor. That the outside closets be abandoned or properly connected with the sewer and frequently flushed. That the insane department be made separate from the other departments and that it be so arranged that the inmates can get out each day in the fresh air. To do this properly will require a separate building. We would also recommend that the hospital ward be improved and differently located.

We desire to acknowledge the kindness shown by the directors, Messrs. Tidd and Richeson, also Superintendent Wilson and Dr. W. H. McIlvain, the county physician.

Respectfully,

R. D. KAHLE,
Committee.

OHIO STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY.
COLUMBUS, July 30, 1896.

TO THE COMMISSIONERS OF HARDIN COUNTY:

DEAR SIRS: Complaint having been made to this Board of the unsanitary condition of the Hardin County Infirmary, an investigation was ordered and was made by Dr. R. D. Kahle, a member of the Board, on July 20th.

The report has been approved by the State Board of Health, and is respectfully referred to your Board with the request that the necessary changes be made as soon as possible.

Yours truly,

C. O PROBST,
Secretary.

REPORT ON THE SANITARY CONDITION OF LAKESIDE.

To the State Board of Health.

GENTLEMEN:

In the fall of 1895 a considerable number of cases of typhoid fever, apparently traceable to Lakeside, were reported to the Board. The matter was referred to the local board of health and to the managers of that resort. The resident physician, Dr. Waters, reported that nearly all of these cases were persons using water from what was known as the chapel well. An examination showed that this well was located within four or five feet of a sewer, which is laid in the rock, and near the point where this sewer makes a right angle turn. On exposing the sewer and testing it, it was found to leak where it passed the well. This sewer carries the waste from the public water closets, including several cottages. and it is easy to understand how this well may have been spe-

The well was closed and a new well drilled about 25 feet from the old one, and 30 feet from the sewer. It is 46 feet deep in rock, and is cased with iron tubing for 8 or 9 feet. The sewer is unchanged and doubtless still leaks.

This well furnishes only a part of the water supply. All of the cottages, of which there are a large number, the hotel and the public drinking fountain, which is the usual supply for transient visitors, obtain water from the lake. The intake pipe is about 100 feet from the shore, and where there is a usual depth of water of 7 to 8 feet.

The ordinary current of Lake Erie is from west to east, though very inconstant, but even this slight protection was neglected at Lakeside, as the water is taken east of the village.

Three to four hundred feet west of the water intake is the public bath house, not a pleasant thought to cleanly people, even though the bathers are clean people.

West of the bath house a few hundred feet is a pier for a boat landing. A large number of boats lie at this pier a greater or less time each day during the season, and endanger the water supply. About five to six hundred feet west of the pier the outlet sewer discharges into the lake near the shore. This carries practically all of the sewage, which amounts to considerable. Last season there was an average daily attendance during the height of the season of about 6,000 people. This season there were about half as many.

The sewer and water intake are about one-fourth of a mile apart. The water at the sewer's mouth was very foul. The surface of the lake was gently rippled, except a widening streak of water extending from the mouth of the sewer east beyond the end of the pier. Dr. Waters, the resident physician, said this smooth water was caused by the grease in the sewage, and that he had often watched it pass the pier. This seems a reasonable explanation of the fact. The pier is made as usual of piling filled with stones. The management make a good deal of this pier as a protector of the water supply, claiming it defects the sewage polluted water and causes it to pass beyond the intake. As a matter of fact the water passes very freely through this pier, and it gives little or no protection against pollution of the drinking water.

As will be seen, the sewer and water intake are just wrong end to, but even if their positions were reversed they are not sufficiently far apart to remove all danger of contamination of the water supply.

On the bank near the mouth of the sewer, is the ice house. The management claim that ice is always cut a considerable distance west of the sewer, but the statement was made by one in position to know, and who may be believed, that the ice is frequently cut not more than two or three hundred yards from the sewer's mouth. It is true that this is done at a time when there are only permanent residents at Lakeside, but there is always some sewage running. All the cottages have out door water

closets, so there is no trouble from bad odors from leaky drains or closets.

The sanitary conditions at Lakeside are decidedly bad, and should receive the attention of this Board before the opening of another season. Some necessary changes of some magnitude suggest themselves, but will not be dealt with in this report.

Your president and secretary visited Lakeside on August 4th, and obtained the information on which this report is based. Under date of August 31, 1896, a communication was received from Dr. LeFevre, health officer of Sidney, in which he stated that several persons who went from there to Lakeside had returned sick, some developing typhoid fever. Subsequently I got reports of the following cases:

Mr. William Piper and family of Sidney went to Lakeside July 9th and returned July 29th. They lived at Parsons' cottage and used water from the new chapel well and, excepting himself, from the lake, that is the fountain or public supply at the office. His wife was taken sick about the time they returned; two children about two weeks after; one in three weeks and one more than four weeks after. The last two cases could hardly be attributable to Lakeside.

Miss Julia Elsner of Sidney wrote that she went to Lakeside July 29th and returned August 14th. She lived at Parsons' cottage and used water from the "public" (she undoubtedly means the new chapel well.) She was taken ill September 5th. This would give an incubation period of twenty-one days, which some authors credit, but it is possible that she could not exactly fix the date on which she was taken ill.

Mr. F. Briggs and family of Delta, Ohio, went to Lakeside July 10th and returned August 18th. There were Mr. Briggs, wife and four children. The youngest son, aged 16, developed typhoid fever a few days after his return. There were no other cases in the family. They used water from the new chapel well.

Miss Galer of DeGraff, Ohio, went to Lakeside July 21st and returned August 1st. She was taken ill August 12th, and died September 1st. She used water from the new chapel well.

Miss Barr of the same place was there at the same time and in the same company. Presumably she used the same water supply. She developed typhoid fever a few days earlier than Miss Galer, but recovered.

Miss Gertrude Stout of Toledo, Ohio, went to Lakeside June 15th, and returned early in August. She developed typhoid fever ten days before returning and was still in the hospital in Toledo, when I heard from her, September 26th. She used the water from the Third street well, which is, as I understand, this new chapel well.

Miss Gerard of Crawfordsville, Ind., went to L
her mother and brother. She was taken ho
ill with typhoid fever, the disease having

She was about well October 15th. Minnie Streh, of the same place, who was at Lakeside with the Gerards and in the same cottage, was also taken with typhoid fever (time not given) and was still seriously ill when I heard from her—October 15th; drinking water was from the chapel well.

These were the only cases of typhoid fever traceable to Lakeside that I heard of, though several others were reported to have contracted diarrhoea there.

Leaving out two cases in the Piper family, probably contracted at home, this makes ten cases and one death. All of these people used water from the chapel well.

It should be remembered that thousands of persons visit this place who remain but a day or two, and how many contracted typhoid fever there, and never suspected its origin, no one can tell.

The resident physician, Dr. Waters, under date of September 11th, answering inquiry of September 7th, wrote that at that time there were not more than twenty-five or thirty nonresidents there. That they had no typhoid fever, and that he had no cases, though he had seen a number of cases of malarial fever in both residents and nonresidents.

I trust the board will take some decided action in regard to conditions at this resort.

Respectfully,

S. P. WISE,
C. O. PROBST,
Committee.

REPORT OF THE SANATARY CONDITION OF RIPLEY.

To the State Board of Health.

GENTLEMEN:

I would respectfully report that on the occasion of a recent visit to Ripley, Ohio, for the purpose of making an inspection of the proposed water supply, I found a state of affairs in the health department of the town that I think should receive the attention of the State Board of Health.

There is but little attention paid to the sanitary condition of the town. The streets are not kept as clean as they should be; vaults are seldom cleaned and frequently overflow; the town lock-up was in a bad sanitary condition. The sanitary officers do not get enough pay to induce them to remain in office. The health officer is not encouraged in the discharge of his duties—indeed is often discouraged by members of council and of the board of health from enforcing sanitary regulations. The board of health is inefficient, very seldom meets, has held but one last several months. It has no rules in regard to burials,

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Adelphi	Mr. Geo. B. Rose.
Addyston	Mr. Hugh Kennedy.
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Alexandria	
Alvordton	Dr. T. E. Schrider.
Amelia	Dr. W. B. Doan.
Andover	Mr. T. R. Wood.
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Baltimore	Dr. C. M. Alt.
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Barnhill	Mr. Lewis Just.
Barnesville	Dr. D. H. Crawford.
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Bellevue	Mr. W. H. Benn.
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Benton Ridge	
Berea	Mr. T. G. Card, Sec'y.
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Berlin Heights	
Bethel	Dr. W. W. Smith.
Bettsville	Mr. Abner Bollinger.
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Blake's Mills	Mr. W. F. Reidenback.
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Bloomingburg	Mr. L. Dellinger.

Bloom Centre	Dr. O. C. Wilson.
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Brilliant	Dr. McDugall.
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Butler	Dr. J. M. McLaughlin.
Butlerville	
Burton	Dr. B. T. Ray.
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Canal Fulton	Mr. George Becker.
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Cardington	Mr. S. C. Bennett.
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Carroll	Dr. H. A. Brown.
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Catawba	Dr. T. D. Beach.
Cecil	Mr. H. L. Weaver.
Cedarville	Mr. O. D. Kildow.
Celina	Dr. L. P. Leslie.
Centerburg	Mr. A. T. Borden.
Centerville	
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Chardon	Mr. F. S. Pomeroy.
Chatfield	Dr. C. D. McLeod.
Chester Hill	Dr. J. A. Penrose.
Chesterville	Mr. John Gleason.
Chicago Junction	Dr. D. H. Young.
Chickasaw	
Clarington	Mr. John E. Morril.
Clarksville	Dr. Z. T. Garland.

Clarksburg	
Clearport	Dr. J. T. Hufford.
Cleves	Dr. W. C. Hughes.
Clifton (Green Co.)	Dr. D. E. Spahr.
Clinton	
Coalton	Mr. M. K. Glenn.
Clyde	Mr. F. G. Tuttle.
Coldwater	
College Hill	Mr. E. F. Smith.
Collinwood	Dr. A. L. Waltz.
Columbiana	Mr. Geo. Roninger.
Columbus Grove	Mr. John K. Lafferty.
Commercial Point	Mr. W. A. Smith.
Congress	
Conneaut	Dr. D. S. Cossitt.
Continental	Mr. S. H. Bretz.
Convoy	Dr. R. L. Crooks.
Coolville	Dr. A. M. Frame.
Copley	Mr. O. E. Arnold.
Corning	Dr. G. W. DeLong.
Cortland	Dr. K. W. Lynn.
Coshocton	Mr. J. E. Foster.
Covington	Mr. Geo. Flammer.
Crestline	Mr. A. J. Cover.
Creston	
Cridersville	Mr. C. H. Thomas.
Croton	Dr. G. M. Lyman.
Crown City	
Crooksville	Mr. W. C. Young.
Cumberland	Mr. Geo. B. McEndree.
Custar	Dr. M. Woeline.
Cuyahoga Falls	Mr. I. N. Reid.
Cygnet	Mr. James H. Ferguson.
Dalton	Mr. A. H. Arick.
Dallas	
Danville	Dr. C. R. Bradfield.
Darbyville	Dr. C. R. Smith.
Deersville	Dr. Frank James.
DeGraff	Dr. L. D. Craig.
Delta	Dr. W. E. Ramsey.
Delhi	Mr. M. L. Andrews.
Dell Roy	Mr. Isaac Yant.
Delphos	Dr. J. M. Marsh.
Dennison	Dr. L. H. Hughes.
Deshler	Mr. J. H. Lathrop.
Dexter City	Mr. E. B. Mosely.
Dillon's	Dr. G. B. Trout.
Donnelsville	Mr. Adam Cornwell.
Doylestown	Dr. A. E. Stepfield.
Dresden	Mr. Frank Comer.
Duncan's Falls	
Dublin	Dr. R. M. Merryman.
Dunkirk	Dr. C. C. McLaughlin.
Dupont	Mr. Isaac Staley.
East Cleveland	Mr. U. C. Hatch, Clerk.
East Fairfield	Dr. G. H. Albright.
East Palestine	Mr. W. H. Olloman.
East Springfield	Dr. George R. Wycoff.
Eaton	Mr. O. H. Jefferson.
Edgerton	Dr. C. Hathaway.
Edison	Dr. J. H. Jackson.
Edon	Mr. R. H. Chisholm.

Eldorado	Dr. J. A. Davison.
Elida	Mr. A. J. Meyers.
Elmore	Dr. S. T. Dromgold.
Elyria	Dr. W. F. McLean.
Elmwood Place	Mr. John H. Bart.
Empire	
Enon	Dr. Elwood Miller.
Euclid	
Eureka	
Evanston	
Fairfield	Mr. Samuel Wilson.
Fairport	Mr. A. J. McCue.
Fairview	Mr. W. N. Brown.
Farmersville	Mr. Geo. W. Neushawg.
Fayette	Mr. E. J. Emerick.
Fayetteville	
Felicity	Mr. Price T. Fee.
Fernbank	Rev. A. C. Thompson.
Fitchville	Dr. E. L. Burton.
Fletcher	Dr. J. Funderberg.
Florida	
Flushing	Dr. A. B. Hobson.
Forest	Dr. W. N. Mundy.
Fort Jennings	Dr. J. F. George.
Fort Recovery	Mr. John Watkins.
Fowler	Mr. C. D. Williamson.
Frankfort	Dr. J. O. Hoffhine.
Franklin	Dr. N. A. Hamilton.
Frazeysburg	Mr. Joseph Martin.
Fredericksburg	Mr. L. C. Miller.
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Gahanna	Mr. Samuel Cashner.
Gambier	Dr. E. J. Hyatt.
Garrettsville	Dr. C. A. Snow.
Geneva	Dr. J. K. Teetzell.
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Girard	Dr. D. R. Williams.
Glandorf	Mr. Jacob Meyerhofer.
Glendale	Mr. E. A. Sayre.
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Glouster	Dr. J. M. Rhodes.
Gnadenhuten	
Good Hope	Mr. D. C. Somers.
Grafton	
Grand Rapids	Mr. Wm. Mailey.
Grand River	Mr. James Averille.
Gratis P. O	Mr. H. Bowman.
Granville	Dr. O. J. Wood.
Graysville	Rev. W. J. Raybould,
Green Camp	Dr. F. W. Moses.
Greenfield	Mr. Scott Powell.
Green Springs	Dr. H. L. S. Hinkley.
Greenwich	Mr. F. L. Ward.
Grove City	Dr. Chas. McGiven.
Grover see Tiltonville)	
Grover Hill	Mr. G. H. Hoyt.
Groveport	Dr. C. R. Clement.

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Hamersville	
Hamer	Mr. Geo. P. Butler.
Hanging Rock	Mr. Joseph Kinkaid.
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Harlem Springs	
Harmar	Mr. John W. Knox.
Harrison	Mr. Thos. Bowles, Sec.
Harrisburg	Mr. C. H Copeland, Clk.
Harrisville	Dr. G. H. Colvill.
Harrod	Dr. M. L. Johnston.
Hartford (Groton P. O.)	
Hartwell	Dr. Lincoln Philips.
Haskins	Dr. E. J. Greenfield.
Harveysburg	Dr. J. E. Whitham.
Havensport	
Hayesville	Mr. Dill Andrews.
Hebron	Dr. R. M Bonar.
Herring	Dr. J. B. McWilliams.
Hicksville	Mr. Nelson Smith.
Higginsport	Dr. J. H. Doland.
Hilliards	Dr. N. P. Davidson.
Hillsboro	Dr. W. Hoyt.
Holgate	Dr. J. G. Archer.
Hollansburgh	Dr. A. W. Meek.
Home City	Dr. B. F. Lehman.
Holmesville	Dr. R P. Loiler.
Hopedale	Dr. L. A. Crawford.
Hoytville	Dr. C. F. Bell.
Hubbard	Dr. G. R. Stevenson.
Hudson	Dr. L. D. Osborne.
Huntsville	Dr. J. S Montgomery.
Huron	
Irondale	Mr. Aaron Bullock.
Independence (Cuyahoga county)	Mr. James C. Neville.
Ithaca	Dr. J. C. Hamilton.
Jackson	Mr. W. H Williams.
Jacksonburg	
Jacksonville	
Jackson Centre	Dr C. W Moots
Jamestown	Mr. Elmer Stinson.
Jefferson	Dr. A. L. Arner.
Jeffersonville	Dr. D. H. Rowe.
Jenera	Mr. J. A. Hull.
Jeromeville	
Jerusalem	Mr. J A. Latham.
Jerry City	Mr. Wm H. Frederick.
Jersey	
Jewett	Mr. J. R. Roberts.
Johnstown	Dr. C. A Burke.
Johnsonville	Mr. E C. Hitchcock.
Junction City	Dr. J A. Moody.
Kalida	Mr. Jefferson Ladd.
Keller's Island	Mr. J J Klein.
Kent	Mr. L. G. Reed.
Killbuck	
Kimbolton	Dr S M McAffey.
Kingston	Dr. C C. Hatfield
Kirby	Dr E F. Burns.
Lafayette Herring P. O.	
LaGrange	Dr. G N Sevier
Larue	Mr. G A. L. Meredith

Latty	Mr. C. Pope.
Laurelville	Mr. Berman Friend.
Laura	Mr. W. S. Olvin.
Lebanon	Dr. F. H. Frost.
Leesburg	Dr. H. A. Beeson.
Leesville	
Leetonia	Mr. H. B. Kurtz.
Leipsic	Dr. John McClung.
Lewisburg	Mr. W. W. White.
Lewisville	Mr. M. Y. Thornbery.
Lexington	Dr. J B. Stober.
Liberty Center	Mr. D. K. Bowker.
Limaville	
Lindsey	
Lisbon	Mr. David H. Eels.
Lithopolis	Mr. J. E. Holmes.
Little Sandusky	
Lockington	
Lockland	Mr. M. Guth.
Lockville	
Lodi	Mr. A. O. Neal.
Logan	Dr. A. K. Smith.
London	Dr. J F. Kirkpatrick.
Lorain	Dr. S. S. Cox.
Loramies	Dr. Thos. Walkup.
Loudonville	Mr. Wm. Conrad.
Loveland	Dr. Wm. Scott.
Louisville	Dr. J. H. Rogers.
Lowell	Dr. Geo. A. Phillips.
Lowellville	Mr. J. D Ball.
Lucas	
Lynchburg	Mr. Martin V. Nolder.
Macksburg	Mr. R. C. Smithson.
Madison	Dr. C. H. Quayle.
Madisonville	Dr. E. A. Flinn.
Magnetic Springs	Dr. C. L. Schwartz.
Magnolia	Mr. Wm. Judd.
Maineville	Mr. E. S. Garwood.
Malta	Mr. Z. Weisman.
Malvern	Dr. E. C. Ross.
Manchester	Dr. R. A. Stephenson.
Mantua Station	
Mapleton	
Marblehead	Dr. A. B. Jorden.
Marice City (Continental P. O)	
Marlborough	
Marseilles	John C. Wartley.
Marshallville	Dr. H. B. Willford.
Martinsburg	
Martinsville	Dr. W. K. Ruble.
Marysville	Dr. John E. Wood.
Mason	Dr. C. T. Hall.
Maumee	Mr. D. H. Perrin, Secy.
Marengo	Mr. Edgar Kerr.
McArthur	Mr. David Lantz
McClure	Dr W. J. Weaver.
McComb	Dr. Jas. A. Thompson.
McConnellsville	Dr. J. D. Maris.
Mechanicsburg	Dr. J. T. Sidener.
Mechanicstown	Dr. John M. Watt.
Medina	Mr. A. A. Foskett.
Melrose	Mr. Wm. Strope.

Mendon	Dr. J. M. Miller.
Mentor	Dr. J. W. Lowe.
Metamora	Dr. C. Heffron.
Midland City	Dr. E. C. Van Gundy.
Middleburg (Middle Creek P. O.)	
Middleport	Dr. A. Wilson.
Middle Branch	
Middle Point	
Miamisville	
Miamisburg	Dr. Henry Schoenfield.
Milan	Mr. Richard Rawl.
Milford	Dr. F. C. Curry.
Milford Center	Dr. J. H. Weiser.
Miltonsburg	Dr. J. H Pugh.
Milton	
Milton Center	Dr. J. F. Noble.
Millbury	
Milledgeville	
Millers	Mr. M. McCown.
Millersburg	Dr. D. L. Olmsted.
Millersport	
Mineral Point	Mr. J. C. James.
Mineral Ridge	Dr. O. A. Yolton.
Minerva	Mr. Thos. J. Rouch.
Minersville	
Mingo Junction	Mr. F. S. Buchanan.
Minster	Dr. R. A. Rulmann.
Mohican	
Monroeville	Dr. E. R. Kneider.
Montpelier	Dr. H. W. Wertz.
Montgomery	
Morristown	Mr. R. S. Hazlett.
Morrow	Dr. Benjamin F. Stiles.
Moscow	Mr. J. R. Wiley.
Mt. Airy	
Mt. Blanchard	Dr. J. Odenbaugh.
Mt. Cory	Dr. W. E. Clymer.
Mt. Eaton	
Mt. Healthy	Mr. Frederick Walker.
Mt. Gilead	Mr. R. C. Spear.
Mt. Pleasant	Mr. Geo. A. Walker.
Mt. Oreb	Mr. J. A. Cumberland.
Mt. Sterling	Mr. C. T. Gallagher.
Mt. Washington	Dr. J. W. Dodds.
Mt. Victory	Dr J. J. Poore.
Murray City	Dr. T. J. Dillinger.
Mutual	Mr. C. M. Goul.
Napoleon	Mr. D. H. Hancock.
Nashport	Mr. H. L. Curtis.
Nashville	Mr. J. A. Underwood.
Navarre	Mr. John Bailess.
Nelsonville	Dr. A. L. Pritchard.
Nevada	Dr. S. S. Barrett.
Neville	Dr. N. S. Hill.
New Albany	Dr. C. L. Dolle.
New Alexandria	
New Athens	Dr. Albert Dickerson.
New Baltimore	
New Bloomington (Agosta P. O.)	
New Berlin	
New Bremen	Dr. M. S. Eckermyer.
New Burlington	Dr. U. G. Murrell.
New Carlisle	Dr. Ben Davis.

Newcomerstown	Dr. J. R. McElroy.
New Concord	Mr. Wm. N. Smith.
New Franklin	
New Holland	Mr. J. A. Dunlap.
New Knoxville	Dr. H. E. Fledderjohann.
New Lebanon	Mr. Samuel Bowman.
New Lexington	Mr. Lawrence Keating.
New London	Mr. A. M. Turner.
New Madison	Mr. J. F. S. Hageman.
New Matamoras	Mr. Theo. Heddleston.
New Moorefield	
New Paris	Dr. Louis Dunn.
New Petersburg	
New Philadelphia	Dr. P. H. Sigrist.
New Richmond	Dr. T. J. Mullen.
New Reigel	Mr. John Moes, Jr.
New Stark	Dr. J. F. Rudy.
New Straitsville	Mr. Marion Truex.
New Salem	
Newton Falls	Mr. A. C. Lawton.
New Vienna	Dr. Geo. R. Conard.
New Washington	Mr. Geo. B. Wolf.
Ney	Dr. P. M. Lehman.
Niles	Dr. C. C. Williams.
North Amherst	Dr. N. H. Cornwell.
North Baltimore	Dr. J. E. Somers.
North Bend	
North Lindale	H. Gearley.
North Lewisburg	Mr. A. Spain.
North Robinson	Dr. C. C. Mandeville.
Norwich	Mr. L. D. Wilson.
Norwood (Hamilton Co.)	Dr. J. C. Caldwallader.
Oak Harbor	Dr. F. S. Heller.
Oak Hill	Mr. Wm. W. Morgan.
Oakwood	Mr. W. E. Osborne.
Oakland	
Oakley	
Oberlin	Mr. E. L. Burge.
Ohio City	Mr. James. McLean.
Olmstead Falls	Mr. C. H. Barnum.
Orangeville	
Orrville	Mr. A. A. Brooks.
Osborne	Dr. R. O. Hoover.
Osgood	Mr. J. W. Sprague.
Osnaburg	Dr. Josh'a Whiteleather.
Ostrander	Dr. A. J. Pounds.
Ottawa	Mr. Frank Light.
Ottoville	Dr. A. Binder.
Otway	Mr. Alfred Jones.
Owensville	Dr. G. G. Rutledge.
Oxford	Dr. E. L. Hill.
Palestine	
Patriot	
Patterson	Mr. John C. Gardner.
Painesville	Dr. D. J. Merriman.
Paris	
Pataskala	Mr. F. McConnaughey.
Paulding	Dr. L. P. Fast.
Payne	
Peebles	Mr. James W. Yankie.
Pemberville	Mr. John Seiler.
Peninsula	Dr. W. N. Boerstler.

Perrysburg	Dr. J. H. Rheinfrank.
Perrysville	Mr. Geo. W. Shehan.
Petersburg (Coal Grove P. O.)	
Phillipsburg (Centre P. O.)	
Philo (Taylorsville)	Dr. J. H. Green.
Pickerington	
Pierce (Stark Co.)	
Piketon	Dr. A. E. Bumgarner.
Pioneer	Mr. W. H. Durbin.
Plain City	Dr. M. J. Jenkins.
Plainfield	Mr. J. S. Jenkins.
Pleasant Hill	Dr. A. J. Bausman.
Pleasant Ridge	Mr. C. W. Acomb.
Pleasantville	Dr. W. E. Baker.
Plymouth	Dr. M. Vance.
Poland	Dr. C. R. Justice.
Polk	Dr. W. H. Rhinehart.
Portage	Dr. Thos. W. Knight.
Port Clinton	Mr. Seig'd Leimgruber.
Port Jefferson	Dr. S. S. Crumbaugh.
Port Washington	Mr. M. W. Nargney.
Port William	Mr. S. L. Thorpe.
Port Union	
Powhatan Point	Dr. J. S. Boone.
Proctorville	Mr. Amos Ripley.
Prospect	Dr. C. M. C. Thomas.
Put-in-Bay	Mr. Hugo Steiert.
Quaker City	Dr. F. S. Miskimen.
Quincy	Mr. R. T. Cretcher.
Racine	Dr. C. N. Hayman.
Rarden	Dr. R. A. Foster.
Rawson	Mr. Michael Smith.
Ravenna	Mr. H. S. Johnson.
Reading	Mr. Geo. Mages.
Rendville	Dr. S. S. Jorden.
Republic	Mr. H. V. Bishop.
Reynoldsburg	Dr. F. G. Taylor.
Richmond (Grand River P. O)	
Richmond	Dr. Samuel Rothacker.
Richville	
Richwood	Mr. J. J. Monroe.
Ridgeway	Dr. E. B. Crow.
Ringgold	Dr. James Davis.
Ripley	Dr. John P. Tyler.
Rising Sun	Mr. Martin Shively.
Riverside	Mr. H. C. Robinson.
Robertsville	
Rockford	Dr. T. G. McDonald.
Rochester	Dr. Geo. Roberts.
Rock Creek	Dr. W. S. Weiss.
Rocky Ridge	Mr Wm. Schlegel.
Rogers	Mr. C. T. McArten.
Roseville	Dr. O. M. Norman.
Rossville (Hagerman P. O.)	
Royalton	
Rushsylvania	Mr. J. S. Mallory.
Rushville	Dr. W. G. Lewis.
Russelville	
Sabina	Mr. Jared L. Johnson.
Salesville	Mr. J. C. Clark.
Salineville	Mr. Wm. Carnahan.

Sarahsville	Dr. W. S. Williams.
Savannah	Mr. L. S. Cowie.
Scio	Mr. L. O. Rippeth.
Sciotoville	
Scott	Mr. Frank Beamer.
Sedalia	Dr. E. B. Mead.
Senecaville	Dr. W. Scott.
Sekitan (Addyson P. O.)	
Sevilie	Dr. P. E. Beach.
Seven Mile	
Shane's Crossing (Rockford P. O.)	
Shawnee	Dr. H. E. White.
Shelby	Dr. W. S. Anderson.
Sharon	Mr. I. A. Reid.
Sherodsville	Mr. W. H. Watkins.
Sherwood	Dr. E. J. Potter.
Shiloh	Dr. L. F. Henry.
Shreve	Mr. C. H. Lilley.
Sidney	Dr. Edwin LeFevre.
Smithfield	Dr. Wm. H. Wood.
Smithville	Mr. A. K. Schaaf.
Somerset	Mr. W. W. Fulkerson.
Somerford, (Madison Co.)	
Somerville	Mr. Alfred Kapp.
South Bloomfield	Dr. E E. Blacker.
South Brooklyn, (Brooklyn)	
South Charleston	Dr. Thos. G. Farr.
South Lebanon	Mr. Geo. W. Snook.
South Point	Dr. James Black.
South Salem	Mr. E. C. Lumbeck.
South Solon	Dr. W. F. McCormick.
South Webster	
Sparta	Mr. S. G. Fowes.
Spencerville	Dr. S. C. Sims.
Springboro	Mr. J. B. Haines.
Spring Hills	Dr. S. H. Elliott.
Spring Valley	Dr. S. E. Dyke.
St. Bernard	Dr. S. B. Howard.
St. Clairsville	Dr. D. L. Walker.
St. Mary's	Mr. J. K. Thomas
St. Paris	Dr. C. A. Offenbacher.
Stewart	Mr. G. H. Hawk.
St. Louisville	
Stockport	Mr. M. C. Riley.
Strasburg	Dr. J. C. Shutzback.
Stout's	Dr. S. B. Grimes.
Stoutsville	
Stryker	Mr. Geo. Snyder.
Summerfield	Mr. John E. Mosely.
Summerford	
Sugar Grove	Dr. E. R. Brown.
Sunbury	Dr. G. H. Gerhardt.
Swanton	Dr. A. B. Lathrop.
Sycamore	Mr. R. S. Galleher.
Syracuse	
Sylvania	Mr. Geo. A. Crandall.
Tarlton	Mr. J. B. Grove, clerk.
Taylorsville, (Philo P. O.)	
Tippecanoe City	Mr. Wm. H. Strader.
Tiltonsville	
Tiro	Dr. W. H. Guiss.
Thornville	Dr. W. T. Stevens.

Thurman	Dr. Gomer E. Jones.
Thurston	
Tontogany	Mr. R. J. Collin, Mayor.
Toronto	Dr. B. F. Collins.
Trenton	
Trimble	Dr. H. D. Danford.
Trimway	Leroy Rose.
Tuscarawas	Dr. C. D. Kurtz.
Union City, Ind	Mr. D. J. Wise.
Uniontown (Fultonham P. O.)	
Unionville	
Unionville Center	
Uhrichsville	Dr. Jas A. McCollom.
Utica	Dr G. W. Garrison.
Upper Sandusky	Dr. O. C. Stutz.
Van Buren	
Vandalia	Dr. W. H. Riley.
Vanlue	Dr. J. L. Schrotz.
Van Wert	Dr. E. L. Wilkinson.
Vermillion	Mr. Henry Schmall.
Versailles	Dr. W. H. Rike.
Vinton	Mr. Robert B. Carter.
Wadsworth	Dr. C. N. Lyman.
Waldo	Dr. J. R. Hipple.
Wapakoneta	Mr. A. Kahler.
Warsaw	Mr. S. W. Willis.
Washington	Mr. T. W. Hyde.
Washingtonville	Dr. J. C. Gorsuch.
Waterloo	
Waterville	Dr. Samuel Downs.
Wauseon	Dr. G. W. Hartman.
Waverly	Mr. Geo. D. Emmitt.
Waynesburg	Dr. E. G. McCormick.
Waynesfield	Dr. Silas McPherson.
Waynesville	Dr. W. E. Oglesbee.
Webster	Mr. J. F. Byrd.
Wellington	Mr. M. W. Lang.
West Alexandria	Mr. L. J. Ashworth.
West Cairo	Dr. Geo. W. Henderson.
West Carrolton	Mr. James B. Manly.
West Chester	
West Elkton	Dr. E wood Holaday.
Westerville	Mr. Jas. D. Budd.
Western Star	
West Jefferson	Dr. W. E. Postle.
West Leipsic	
West Leipsic	
West Liberty	Dr. R. M. Fulwider.
West Manchester	Mr. David E. Allen.
West Mansfield	Mr. M. Bozeman.
West Middleburg	
West Mill Grove	
West Milton	Dr. Gainor Jennings.
West Salem	Dr. D. W. Carver.
Weston	Dr. G. B. Spencer.
West Union	Dr. W. K. Coleman.
West Unity	Mr. J. H. Tiddler.
West Wheeling	
Wheelersburg	
White House	Dr. C. H. Ellis.
Wilkesville	Dr. E. M. Dixon.

Williamsburg, (Batesville P. O)	
Williamsport	Dr. G. C. Hayes.
Windham	Mr. H. J. Higby.
Willoughby	Dr. E. G. Clark.
Willshire	Dr. J. K. Ross.
Wilmington	Dr. G. M. Austin.
Winchester	Dr. C. W. Salisbury.
Winton Place	Mr. John R. Froome.
Woodsfield	Mr. A. S. Baker.
Woodstock.	Mr. D. P. Smith.
Woodville	Mr. Samuel Crawford.
Worthington	Dr. D. H. Welling.
Wyoming	Mr. A. M. VanDyke.
Yellow Springs	Dr. W. M. Haffner.
York	
Zanesfield	
Zaleski	Dr. F. M. Smallwood.
Zoar	Dr. Clemens Breil.

ANNUAL REPORTS

OF

LOCAL BOARDS OF HEALTH

FOR THE

YEAR ENDING DECEMBER 31, 1896.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY.
COLUMBUS, OHIO, December 31, 1896.

To the Health Officer:

Section 2136 of the Revised Statutes of Ohio makes it the duty of the board of health to make a report to the State Board of Health on or before the first Monday in March of each year: also to make such special reports as may be called for by said State Board.

It is more desirable in many ways that the annual reports should be made for the calendar year, and this is necessary in order that these reports may be published in the annual report of the State Board of Health; you are therefore respectfully requested to send your annual report as soon as possible after December 31, 1896.

Please answer the questions in regard to the sanitary condition of your city as fully as possible, and give such additional information as you deem proper.

An addressed envelope is enclosed for your reply.

Very respectfully,

C. O. PROBST, M. D.,
Secretary.

SANITARY CONDITION OF CITIES.

4,000 POPULATION AND OVER.

1. Name of City.
2. Estimated population.
3. Water supply—
   (a) Source.
   (b) Average daily quantity used during the year.
   (c) Sources of pollution.
   (d) Changes recommended.
4. Ice—
   (a) What proportion of the city's ice supply is taken from waters within or near city limits?
   (b) Is this supply liable to be contaminated?
   (c) What steps, if any, have been taken to prevent such contamination, or sale of such ice.
5. Sewerage—
   (a) Give number of miles now in use.
   (b) Have you the combined or separate system of sewerage?
   (c) Give number of main outlet sewers.
   (d) Where do these sewers discharge, and into what body of water?
   (e) Estimated number of water-closets and privy vaults connected with the sewers.
   (f) What changes, or additions to sewerage system are needed?
6. Night-soil.
   (a) Are water-tight vaults required?
   (b) Average frequency of cleaning privy vaults.
   (c) How is night-soil disposed of?
   (d) Are abandoned privy vaults allowed to be filled with earth without cleaning?
   (e) Are abandoned wells used for cess-pools or privies?
   (f) Estimated number of dry-earth closets in use.
7. Garbage—
   (a) Give arrangements for removing garbage.
   (b) If at expense of city, give cost for 1896.
   (c) Requirements as to frequency of removal.
   (d) What disposition is made of the garbage?
   (e) If on land, does the city own or lease the land?
8. Nuisances—
   (a) Number investigated during the year.
   (b) Number abated.
   (c) Number of prosecutions for failure to abate.
   (d) Number of prosecutions decided in favor of the board of health.
9. Milk inspection—
   (a) Number of milk inspectors employed.
   (b) Is a permit required to sell milk?
   (c) Is a record kept of the names, residence and place of business of all persons engaged in the sale of milk. (See section 2133 R. S.)
   (d) Are all dairies and dairy herds inspected that furnish milk to the city?
   (e) Number of samples of milk examined during the year.
   (f) Number found adulterated or below standard.

(g) Number of prosecutions for selling or offering for sale milk adulterated or below standard.

(h) Number of cases decided in favor of the board of health.

10. General recommendations as to sanitary improvements most needed in your city.

MORTALITY STATISTICS FOR 1896.

Total No. Deaths.	Total from Contagious Diseases. (*See below)	Total from Typhoid Fever.	Total from Tubercular Diseases.	Total from Diarrhœal Diseases.	Total from Malarial Diseases.
.....	.....	....	.....	.....	....

*Under this head ' Contagious Diseases " include only Diphtheria, Membranous Croup, Scarlet Fever, Measles and Whooping Cough.

Please state whether you favor the enactment of a law providing for an annual levy for a sanitary fund in each city, village and township, to be under the exclusive control of their respective boards of health.

Signed:

...., Health Officer.

1. AKRON.
2. 40,000.
3. (a) Summit Lake and wells.
(b) 3,000,000 gallons per day.
(c) Lake Erie and Ohio Canal.
4. (a) For domestic use nearly all artificial, and balance from lakes.
(b) Not as a rule—
5. (a) Thirty and a half.
(b) Both
(c) One.
(d) About 3,000 feet from N. Howard Street into Cuyahoga River.
6. (a) Yes.
(b) Annually.
(c) Have been collecting in air tight casks and then taken into country.
(d) No.
(e) No.
7. (a) None. Collected by farmers.
(d) Food for hogs.
(e) No.
8. (a) 560.
(b) 560.
(c) Two.
(d) Two.
9. (a) One.
(b) Yes.
(c) Yes.
(d) As a general rule.
(e) 737.
(f) Four.
(g) None.
10. Garbage disposal.

Mortality statistics for 1896.—Total number deaths, 528; total from contagious diseases, 9; total from typhoid fever, 5; total from tubercular diseases, 61; total from malarial diseases, 8.

DR. G. M. TODD.
Health Officer.

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1. ASHTABULA.
2. 15,000.
3. (a) Lake Erie.
(b) 1,000,000 gallons.
(c) Streams emptying into the [illegible] lake.

[illegible] moved west as far as the least.

[illegible]-thirds part is cut

(b) Ice taken from river is liable from sewage.

(c) None, discussion is on as to whether the local board has power to prevent all cutting from the river.

5. (a) About fourteen miles.

(b) One sewer at harbor combined system, one up town that is a separate system.

(c) Two.

(d) At the harbor the sewer discharges into Ashtabula River about one half mile from the end of the piers—the uptown sewer discharges into the same river about two miles from the end of piers where it runs into Lake Erie.

(e) 500.

(f) More streets need sewers, the systems are not yet complete.

6. (a) Sewer connection, water tight receptacle and dry earth closet.

(b) Twice per year.

(c) Composted and plowed under, removed to farms outside of city.

(d) No.

(e) No.

(f) 2,000.

7. (a) Taken away in barrels by private parties.

(c) Often enough to prevent becoming offensive.

(d) Some fed to hogs with other feed and some composted.

(e) City does not own. Scavengers furnish their own dump grounds.

8. (a) 650.

(b) 600.

(c) Two for violating rules of board.

(d) Two.

10. Extension of sewers and a system of collecting garbage. Board of Health should have power to remove all garbage and levy tax therefor.

DR. A. W. HOPKINS,
Health Officer.

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1. BELLAIRE.
2. 9,000.
3. (a) Ohio River.

(c) Cities situated on Ohio River above Bellaire.

4. (a) None for drinking purposes.

(b) Yes.
(c) None.
5. (a) Between nine and ten miles.
(b) Combined.
(c) Five.
(d) Iudian run and Ohio river.
(e) 530.
6. (a) Yes.
(b) Every three or four years.
(c) Hauled away at night time and buried outside of city limits.
(d) Yes..
(e) No.
(f) None.
7. (a) Every household removes their own garbage or hires it done.
(c) As often as necessary to keep premises clean.
(d) Taken outside of city limits and buried.
(e) No.
8. (a) 83.
(b) 83.
(c) None.
9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.
(g) None.
10. All privy vaults should be connected to sewer where possible, and thorough inspection of all plumbing.

Mortality statistics for 1896.—Total number deaths, 155; total from contagious diseases, 18; total from typhoid fever, 2; total from tubercular diseases, 26; total from diarrhœal diseases, 8; total from malarial diseases, none.

DR. D. W. BOONE,
Health Officer.

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1. BELLEFONTAINE.
2. About 7,500.
3. (a) Over-flow wells and forced up through pipes to city wells; are about 170 feet deep, I think.
(b) 700,000 gallons.
(c) From the dam above, used for overflow from pipes and to afford pressure in case of fire.
(d) A filter through which it should return to the supply pipes.
4. (a) Most of the ice used for domestic purposes is manufactured by the Hern ice plant.
(b) This is not.
(c) None.
5. (a) None, except 'Possum Run.
(b) No.
(c) None.
(d) Almost all filth from the town finds its way into 'Possum Run, then to Bluejacket, then to Buckenghola and Miami River.
(e) Two hundred or more.
(f) An entire system.
6. (a) No.
(b) When ordered by health officer.
(c) Hauled to farms and scattered over the soil.
(d) No, not when known.
(e) No, except two.
(f) None.
7. (a) Hauled away in slop barrels.
(b) At the cost of individuals.
(c) Every day or two.
(d) The same as night soil.
(e) The land of farmers.
8. (a) 400.
(b) 300.
(c) None.
(d) None
9. (a) None.
(b) Yes.
(c) Yes.
(d) Yes, but not likely as they should be; milk men are strictly honest.
(f) None.
(g) None.
(h) None.
10. A good system of sewerage would put us all right sanitarily.

Mortality statistics for 1896.—Total number of deaths, 83; total from contagious diseases, 6; total from typhoid fever, 3; total from tubercular diseases, 13; total from diarrhœal diseases, 2; total from malarial diseases, 1.

I most certainly do.

DR. C. W. HEFFNER
Health Officer.

1. BROOKLYN.
2. 2,200.
3. (a) We all have wells of pure water.
(b) I cannot tell how much.
4. (a) About one-tenth part.
(e) The city of Cleveland does not allow it to be used for drinking purposes.
5. (a) Half mile.
(b) No.
(c) One.
(d) Into a big creek.
(e) None.
(f) We need sewers and are going to commence to build them.
6. (a) All are required to make vaults.
(b) Every year.
(c) Carted away in tight barrels and taken in the country about two miles from corporation line.
(d) There are not.
(e) They are not allowed to use them.
7. (a) None.
(c) Once per year.
(d) Taken out on some farm by farmers.
(e) No, farm property.
8. (a) 34.
(b) 31.
(c) None.
(d) None.
9. (a) None.
(b) No.
(c) No.
(d) Inside of corporation.
(e) None.
(f) None.
(g) None.
(h) None.
10. We need lake water and more sewerage.

Mortality statistics for 1896.—Total from contagions diseases. 1; total from typhoid fever, 1.

R. E. STICKNEY,
Health Officer.

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1. BUCYRUS.
2. 7,000.
3. (a) For domestic use is obtained from wells, and remainder of supply for [illegible] from water works.
(b) From works was 450,000 gallons.
(d) The water works obtain their supply from Sandusky river, it being polluted by sewage of Crestline, but same is well filtered before being sent out from water works.
(d) The water company expect to add additional filters, and build a large reservoir for fire protection during dry season.
4. (a) All of it.
(b) No, it is obtained from springs and wells.
(c) When taken from the river it is sold "for cooling purposes only," painted on wagons in large letters.
5. (a) 12.
(b) Combined.
(c) Four.
(d) Into Sandusky river.
(e) 200 indoors and 300 outside.
(f) Better flushing, intercepting sewer, and sewage disposal.
6. (a) Yes, but very few are (strictly speaking) water tight.
(b) Once a year.
(c) Buried in trenches on city dumping ground, at a depth of 3 feet and covered.
(d) No, must be cleaned first and filled with earth before permit is granted to change location.
(e) No.
(f) None, but 100 drawers are in use.
7. (a) One wagon is in use daily in summer and twice a week in winter.
(b) $25.00 per month, for one horse wagon and man.
(c) If an unusual amount of garbage at grocery stores, they pay extra, and it is removed by scavenger twice a day or as board of health directs.
(d) Taken outside corporation on farm and buried.
(e) Do not.
8. (a) About 200.
(b) All satisfactorily to those concerned.
(c) None.
9. (a) Two, health officer and sanitary police.
(b) Yes, we issue a milk certificate.
(c) Yes.

(d) Yes, once a month by inspectors.

(e) About once a week.

(f) None.

(g) None.

10. An intercepting sewer and sewage disposal works.

Mortality statistics for 1896.—Total number deaths, 95; total from contagious diseases, 14; total from typhoid fever, 5, total from tubercular diseases, 16; total from d arrhœal diseases, 2; total from malarial diseases, 1.

Yes.

DR. W. A. DAUGHERTY,
Health Officer.

---

1. CAMBRIDGE.
2. 8,000.
3. (a) Wells.

(b) Water works just completed.

(c) None.

4. (a) A very small proportion, taken from a pond, water supply from springs.

(b) No.

(c) No need.

5. (a) Have no sewerage.

(f) A sewerage system is needed very much.

6. (a) Vaults or dry earth closet at option of appli ant.

(b) Two or three times a year.

(c) In pits under cover.

(d) No.

(e) No.

(f) Three hundred.

7. (a) In covered vessels by property owners.

(c) Before it becomes offensive.

(d) Garbage that putrefies goes to night-soil pit and is treated with lime and dry earth.

(e) Land for pits leased.

8. (a) One hundred and thirty-five.

(b) One hundred and fifteen.

(c) Six.

(d) Six.

9. (a) Rules for inspection of milk go in force January 18, 1897.

(b) Yes.

(c) There will be.

(d) They will be.

(g) None.

(h) None.

10. Want of sewerage.

Mortality Statistics (from April 1, 1896).—Total number of deaths, 85; total from contagious diseases, 9; total from tubercular diseases, 18; total from diarrhœal diseases, 7; total from malarial diseases, 2.

Yes.

I. A. OLDHAM,
Health Officer.

---

1. CANTON.
2. 38,000.
3. (a) From creek and artesian wells.

(b) 2,989,141 gallons.

(c) Any pollution which may contaminate creek. Surface water pollution.

(d) That present water supply outside artesian well water be abandoned, and that instead of surface water, artesian and spring water be used.

4. (a) None of any consequence. Principally distilled water.

(b) No.

(c) None.

5. (a) 1,831.

(b) Separate.

(c) One.

(d) Into sewage disposal works, where precipitation method of disposal is used.

(e) Don't know.

(f) None.

6. (a) No.

(b) Whenever within 4 feet of top.

(c) Any not accommodated in sewers is hauled out on land outside city limits.

(d) No.

(e) No.

(f) None.

7. (a) No arrangements made by city. Individuals arrange for disposal with men who haul it away.

(b) None.

(c) Whenever offensive.

(d) Hauled away—Generally outside city.

(e) No.

8. (a) 510.

(b) About 500.

(c) None.

(d) None.

9. (a) One.
(b) Yes.
(c) Yes.
(d) No.
(e) 129.
(f) Seven adulterated. None below standard.
(g) Seven for adulteration.
(h) All convicted—7.

10. Building of a garbage furnace, sewering Shriver's run, hiring of a patrolman to make regular trips for inspection of creek, and report findings to Board of Health.

Mortality Statistics for 1896.—Total number of deaths, 320; total from contagious diseases, 34; total from typhoid fever, 17; total from tubercular diseases, 23; total from diarrhœal diseases, 10.

Yes.

J. F. MARCHAND, M. D,
Health Officer.

---

1. CHILLICOTHE.
2. 15,000.
3. (a) Wells and Scioto River.
(b) 700,000 gallons.
(c) None.
(d) None.
4. (a) Only a small amount, mostly from artificial ice plant.
(b) Yes.
(c) None up to date.
5. (a) None.
(b) No.
(c) None.
(d) None.
(e) None.
6. (a) Yes.
(b) Twice a year.
(c) Taken outside city limits and used as manure by certain farmers.
(d) No.
(e) No.
(f) None that I know of.
7. (a) The Board simply employs men with horse and open cart. Such number is employed as will remove all garbage.
(b) It is at expense of city. Cost $2,327.33.
(c) Carts go over their respective territory every morning and remove the garbage.
(d) Carted outside city limits and partly burned. Balance used as manure
(e) Simply lease the land.
8. (a) About 722.
(b) Nearly all of above.
(c) None.
9. (a) No one. Health officer acts in this capacity.
(b) Yes.
(c) Yes.
(d) Yes, to a certain extent.
(e) About one hundred.
(f) About twelve.
(g) None. Dealers never repeated the adulteration a second time.
10. Complete system of sanitary sewerage.

Mortality Statistics for 1896.—Total number of deaths, 199; total from contagious diseases, 11; total from typhoid fever, 8; total from tubercular diseases, 25; total from diarrhœal diseases, 9; total from malarial diseases, 3.

Yes, indeed.

C. S. MCCAFFERTY, M. D.,
Health Officer.

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1. CINCINNATI.
2. 405,000.
3. (a) Ohio river.
(b) 44,733,923 gallons.
(c) Sewage—street drainage east of intake.
(d) Entire new water works with complete filtration system.
4. (a) Thirty per cent.
(b) Very little if any.
(c) None other than to exercise a close supervision over the source.
5. (a) 205 miles.
(b) 175 miles combined and 30 miles separate.
(c) Eight main outlets and twenty minor outlets.
(d) Into the Ohio river and Mill creek.
(e) 16,000.
(f) Many additions are needed.
6. (a) Yes.
(b) Whenever they are within four feet of surface.

(c) The night soil is dumped in the Ohio river.

(d) No.

(e) Yes.

(f) 100.

7. (a) Removed by city wagon.

(b) $21,583.31.

(c) 7,3,2 and 1 times weekly depending on season and district.

(d) Converted into grease and tankage utilization system.

8. (a) 13,740.

(b) 13,740.

(c) None.

(d) None.

9. (a) Two.

(b) Yes.

(c) Yes.

(d) Yes.

(e) 892.

(f) About eight per cent.

(g) Eleven.

(h) Eleven.

Mortality statistics for 1896.—Total number deaths, 5,916; total from contagious diseases 313; total from typhoid fever, 164; total from tubercular diseases, 736; total from diarrhœal diseases, 131; total from malarial diseases, 38.

J. W. PRENDERGAST, M. D.
Health officer.

---

1. CIRCLEVILLE.

2. 7,000.

3. Darby creek it is about two miles from the city.

(b) Do not know.

(c) None whatever unless it would come from river, we have had water examined and found good by the Starling Medical College expert.

(d) None.

4. (a) All is taken from canal west of river.

(b) Not from any stream of water it lies higher than all others.

(c) None.

5. (a) One mile.

(b) Just common sewer.

(c) One.

(d) Scioto river not direct but it discharge into an open ditch which empties into river about 1,000 feet from mouth of sewer.

(e) Twenty-five.

(f) We need an extra system of sewerage for city with no propect of getting it.

6. (a) No.

(b) About twelve times.

(c) Hauled out of the corporation onto farms and covered up.

(d) Yes.

(e) Very few.

7. (a) None.

(b) None.

(c) None.

(d) What is hauled out is on land owned by farmers who give their consent.

(e) No.

8. (a) 342.

(b) About 300.

(c) None.

(d) None.

9. (a) None.

(b) None.

(c) None.

(d) Not been inspected but they have good healthy stock and good care.

(e) None.

(f) None.

(g) None.

(h) None.

10. A perfect system of sewerage is the only thing that is needed for our city.

Mortality Statistics for 1896.—Total number deaths, 121; total from contagious diseases, 3; total from typhoid fever, 7; total from tubercular diseases, 21; total from diarrhœal diseases, 3; total from malarial diseases, 2;

Most certainly we do.

W. F. TOLBERT.
Health officer

---

1. CLEVELAND.

2. 350,000.

3. (a) Lake Erie.

(b) 10,991,835 gallons '95)

(c) Cuyahoga River. All the sewage of the city; also all the night soil which is dumped out in the lake.

(d) None as we are perfect

same at this writing by a new in take farther out and east of the city also by new intercepting sewer.

4. (a) None except small quantity for cooling purposes only.

(b) Yes and is.

(c) A city ordinance as per Exhibit "A" attached hereto which we had passed and improvements as above.

5. (a) 234 miles.

(b) Separate.

(c) Nine.

(d) Foot of the main streets ending at the lake front or river. Discharge into Lake Erie eventually.

(e) 30,000.

(f) None except that which is in process of construction.

6. (a) Yes.

(b) Yearly.

(c) Dumped into Lake Erie ten miles out from shore and east of mouth of Cuyahoga river.

(d) No--City ordinance prohibits. We enforce this ordinance strictly.

(e) No—Forbidden by city ordinance which we strictly enforce.

(f) 10,000.

7. (a) None except removed to garbage boat and dumped into lake at expense of individual householders. Will have good garbage plant in operation soon.

(b) $40 per week for use of garbage boat.

(c) Whenever sanitary officers think necessary.

(d) Dumped into garbage boat and from that into Lake Erie.

8. (a) 107,128.

(b) 88,037.

(c) Twenty-nine.

(d) Twenty-nine.

9. (a) Two good chemists and two officers to assist.

(b) Yes. One dollar per annum.

(c) Yes we keep a very comprehensive record.

(d) Those in city limits yes. Outside some, very small number.

(e) 5,160.

(f) 563.

(g) Six raising standard of milk very high.

(h) Four.

10. Have been made and are being perfected.

Mortality statistics for 1896.—Total No. deaths, 4,859; total from contagious diseases, 289; total from tyyhoid fever 147; total from tubercular diseases 169; total from diarrhœal diseases, 380; total from malarial diseases, 17.

Yes and we have it. '95 for '96 expenses $.00027 per dollar giving us $36.331.98 and licenses $5,000.00.

J. L. Hess. M. D.
Health Officer.

---

1. Columbus.

2. 100.000.

3. (a) River and wells; the latter are both public and private. East Side Station, the public wells.

(b) Twelve million gallons.

(c) The banks of the river, sewage of small towns and the soil saturated with city dirt, wherever the private wells are dug.

(d) Dams in the river to retain water and filtering beds and abolition of private wells.

4. (a) I estimate that in cold seasons one half is taken from ponds and river.

(b) Yes, the same kind of contamination to which the river water is exposed.

(c) No.

5. (a) Can not at this time.

(b) Combined except on west side, which are partly separate.

(c) There are five main outlets.

(d) The East side sewer discharges into Alum creek. The rest into the Scioto river.

(e) I think there are something over 14,000.

(f) For final disposal a filtration plant for the East side sewer and the same for the intercepting and West side sewers.

6. (a) Yes.

(b) Once a year in most cases.

(c) It is carried to the country and buried in the soil.

(d) No.

(e) No.

(f) I know of none.

7. (a) Removed in tanks by private contract; 6,727.5 tons have been removed since April 15, 1896.

(b) $15,800.

(c) In central portion of city daily; outside twice a week.

(d) It is reduced by tanking fat extracted by pressure; the rest so far has not been utilized.

(e) The company owns the land.

8. (a) 12,928.

(b) 12,440.

(c) Twenty-five.

(d) Twenty-five.

9. (a) One.

(b) Yes.

(c) Yes.

(d) Not all only a few so far.

(e) 339.

(f) Sixteen.

(g) None.

10. Filtration plants for sewage improved water supply. Extension of service in milk and dairy inspections etc.

Mortality statistics for 1896.—Total No. deaths, 1,370; total from contagious diseases, 53; total from typhoid fever 49; total from tubercular diseases, 253; total from diarrhœal diseases, 69; total from malarial diseases, 5.

D. N. KINSMAN, M. D.
Health Officer.

---

1. DAYTON.

2. 85,000.

3. (a) Holly system and drove wells. About three-fourths of population use well water.

(b) No means of estimating.

(c) None excepting from surface water obtained from shallow wells.

(d) None save such as has been ordered by the board of health, "Driving tube wells 45 feet deep."

4. (a) It is all so taken. Some manufactured.

(b) No.

5. (a) Forty-two.

(b) Separate.

(c) One.

(d) Miami river.

(f) None.

6. (a) No.

(b) Five years.

(c) Cremated.

(d) Never.

(e) Never.

(f) None.

7. (a) By water tight wagon beds.

(c) Varies from one to seven days.

(d) Cremated.

8. (a) Number of inspections, 22,146.

(b) Miscellaneous abated, 314.

(c) One.

(d) One.

9. (a) None.

(b) No.

(c) No.

(d) No.

(e) Six.

(f) Four.

(g) None.

(h) None.

10. More money appropriated; deeper wells; abandonment of open vaults; milk inspector; live stock inspector bacteriologist; connection of all closets with the sanitary sewer.

Mortality statistics for 1896.— Total number of deaths, 1,026; total from contagious diseases, 84; total from typhoid fever, 21; total from tubercular diseases, 129; total from diarrhœal diseases, 37; total from malarial diseases, 3.

I do.

DR. A. H. IDDINGS,
Health Officer.

---

1. DEFIANCE.

2. 10,000.

3. (a) From Maumee and Auglaize rivers.

(b) 988,346.

4. (a) All.

(b) Yes.

(c) None.

5. (a) Eight miles.

(b) Yes.

(c) Eight.

(d) Maumee and Auglaize rivers.

(e) One hundred and fifty.

(f) None.

6. (a) Yes.

(c) In tight barrels.

(d) No.

(e) No.
(f) One.
7. (a) City employs a scavenger.
(b) $462.
(c) Daily.
(d) Hauled beyond the corporate limits of the city and there burned.
(e) No.
8. (a) One hundred and fifty.
(b) One hundred and forty-eight.
(c) None.
(d) None.
9. (a) One.
(b) Yes.
(c) Yes.
(d) Yes.
(e) Ten.
(f) About one-half.
(g) One.
(h) One.
10. The removal of stock yards and the Standard oil tanks.

Mortality statistics for 1896.— Total number deaths, 83; total from contagious diseases 5; total from typhoid fever, 2; total from tubercular diseases, 18; total from malarial diseases 3.

DR. P. H. ALDRICH,
Health officer.

---

1. DELAWARE.
2. 9,000.
3. (a) Wells owned by Delaware Water Co. Private wells.
(b) 300,000 to 350,000 gallons.
(c) None.
(d) None.
4. (a) All.
(b) Yes.
(c) None.
5. (a) No general sewerage.
(b) Separate.
(c) Three (from private sewers).
(d) The three private sewers discharge into the Olentangy river.
(e) Three.
(f) We need general sewerage.
6. (a) Yes.
(b) Monthly.
(c) Night soil is buried on land leased by the city.
(d) No.
(e) No.
(f) Four hundred.
7. (a) No arrangement.
(b) No expense.
(c) No requirements.
(d) Private parties remove garbage at expense of property owners.
8. (a) Ten.
(b) Ten.
(c) None.
(d) None.
9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.
(g) None.
(h) None.
10. Sewerage.

Yes.

DR. E. M. SEMANS,
Health Officer.

---

1. DELPHOS.
2. 4,500.
3. (a) Wells; we now have a system of water works nearly completed. The water supply will be from wells.
4. (a) All.
(b) No.
5. (a) About 6 miles.
(b) Combined.
(c) Three.
(d) They discharge into small creeks.
(e) None.
(f) The capacity of some of the main lines is not sufficient. There should be further extension of lines in some parts of the city.
6. (a) No.
(b) Probably every two years.
(c) It is hauled into the country and buried in the soil.
(d) No.
(e) No.
(f) None.
7. (a) It is removed by men who use it for fattening hogs.
(b) None.
(c) Twice a week in summer.
(d) It is used for feeding hogs by those removing it.
(e) The garbage and trash not fit

for feed is taken to dump grounds owned by the city.

8. (a) Probably 200 mainly privy vaults.

(b) About 200.

(c) None.

9. (a) None.

(b) No.

(c) No.

(d) No.

(e) None.

(f) None.

(g) None.

10. Additional sewers and improvement in privy vaults.

Mortality statistics for 1896.—Total number deaths, 47; total contagious diseases, 7; total from typhoid fever, 2; total from tubercular diseases, 5; total from diarrhœal diseases, 2; total from malarial diseases, none.

Yes.

DR. J. M. MARSH,
Health Officer.

---

1. EAST LIVERPOOL.

2. 15,000.

3. (a) Ohio River.

(b) 1,500,000 gallons.

(c) Sewerage from all cities situated on the Ohio above this point, and on the Monongahela, Allegheny, Youghiheny and Beaver rivers including cities of Pittsburg and Allegheny, Pa.

(d) That the U. S. government take charge of the matter and prohibit the use of these rivers as sewer outlets.

4. (a) None during 1896.

5. (a) About 12 miles

(b) Separate system.

(c) Two.

(d) Ohio River.

(e) 567 houses are connected with sewer system.

(f) Need district No. 2 sewered.

6. (a) Yes.

(b) Whenever contents are within four or five feet of top of vault.

(c) Dumped into Ohio river.

(d) No.

(e) No.

(f) None.

7. (a) By private arrangements with local expressmen and teamsters.

(b) None—except during summer months when it must be removed once or twice a week.

(c) Dumped into Ohio river.

8. (a) One.

(b) Case withdrawn.

9. (a) One.

(b) Yes.

(c) Yes.

(d) No.

(e) 41.

(f) None.

(g) None.

10. That sewer district No. 2 be sewered. That some means be provided for the disposal of all garbage and night soil so that it will not be thrown into the river.

Mortality statistics for 1896.—Total number deaths, 167; total from contagious diseases, 16; total from typhoid fever, 12; total from tubercular diseases, 27; total from diarrhœal diseases, 8; total from malarial diseases, none.

Yes.

C. B. OGDEN, M. D.,
Health Officer.

---

1. ELYRIA.

2. 9,500.

3. (a) Public or fire protection; Black river; domestic wells and cisterns.

(b) Not known.

(c) Sewers emptying into river; wells liable to pollution from night soil and house slops.

(d) The city expects to get water supply from Lake Erie within present year. Property owners should be required to connect water closets with sewers when latter are within reasonable distance.

4. (a) At least three-fourths; the larger part used by saloons and meat markets.

(b) Yes, by sewage emptyied into river.

(c) None—except public have been warned by circular from health officer against using this ice for domestic purposes in house refrigerators and drinking water.

5. (a) Eight and three-tenths.
(b) Combined.
(c) Twenty-one.
(d) On bluff banks and into Black river.
(e) Two hundred and forty-four.
(f) There should be an intercepting sewer connecting all the sewers into one trunk sewer and carried to sewage farm below the city, but not able to do it at present.

6. (a) Yes, for all new ones. The most of the privies have earth pits, some boxes and pails.
(b) Vaults at least once every year, others monthly or oftener.
(c) Scavenger collects and taken to city dump ground where it is composted with earth in pits.
(d) No.
(e) No.
(f) Nine hundred and eighty-three.

7. (a) Swill is collected by farmers. Other garbage collected by scavenger and composted with night soil. Rubbish burned on dump ground.
(b) No cost to city, paid by individuals.
(c) To be kept in barrels convenient of access for scavenger and removed with night soil.
(d) Composted with night soil in pits on city dump ground except what is burned.
(e) City owns the land.

8. (a) Seven.
(b) Seven.
(c) One.
(d) One.

9. (a) None.
(b) No.
(c) No, our board has never taken any action regulating milk traffic.
(d) No.
(e) None.
(f) None examined.
(g) None.
(h) None.

10. More sewers and compulsory connection therewith in business and thickly populated districts of city—second, an abundant and wholesome water supply.

Mortality statistics for 1896.—Total number deaths, 102; total from contagious diseases, 4; total from typhoid fever, 2; total tubercular diseases, 17; total from diarrhœal diseases, 8; total from malarial diseases, none.

Yes.

W. F. McLEAN, M. D.,
Health Officer.

---

1. FINDLAY.
2. 20,000.
3. (a) Blanchard river.
(b) 942,734 gallons.
(c) None except the natural sources of pollution along a country stream.
(d) None.
4. (a) All of it.
(b) No.
(c) The ice has been analyzed and found to be pure.
5. (a) None built in 1896.
(b) Combined.
(c) Four.
(d) Blanchard river and Eagle creek.
(e) About four hundred.
(f) A complete new system in the main part of city—that part south of river
6. (a) No.
(b) Once a year.
(c) By removing outside of city limits and burying.
(d) No.
(e) No.
(f) A good many.
7. (a) Garbage is removed by men regularly in the business and when neglected is removed by order of the health officer.
(b) No.
(c) Three times a week in summer and once a week in winter.
(d) Burned at crematory.
(e) No.
8. (a) Twelve hundred.
(b) All of them.
(c) Sixteen.
(d) All of them.
9. (a) One.
(b) Yes.
(c) Yes.
(d) Yes.

(e) No, tests made only with lactometer.

(f) None.

(g) None.

(h) None.

10. A good sewer system on the south side of river.

Mortality statistics for 1896.—Total number of deaths, 260; total from contagious diseases, 14; total from typhoid fever, 5; total from tubercular diseases, 33; total from diarrhœal diseases, 32; total from malarial diseases, 1.

Yes.

AMOS BEARDSLEY,
Health Officer.

---

1. FOSTORIA.
2. 10,000.
3. (a) Branch of Portage river.
   (b) 544,900 gallons.
   (c) None.
   (d) None.
4. (a) All or nearly so.
   (b) No.
   (c) None.
5. (a) Twenty-six miles.
   (b) Combined by district system.
   (c) Two.
   (d) Portage river below city.
   (e) 235.
   (f) None.
6. (a) Yes.
   (b) Once a year.
   (c) Hauled on farm and prepared for fertilizer.
   (d) No.
   (e) No.
   (f) 900.
7. (a) Hauled to outside corporate limits onto farm property.
   (b) Eleven hundred and ten dollars.
   (c) Daily.
   (d) Hauled to farm outside corporate limit and rough garbage burned.
   (e) Neither.
8. (a) Twelve hundred.
   (b) All.
   (c) None.
   (d) None.
9. (a) One.
   (b) Yes.
   (c) Yes.
   (d) Yes.
   (e) Daily inspection.
   (f) None.
   (g) None.
   (h) None.
10. None whatever.

Mortality statistics for 1896.—Total number deaths, 59; total from contagious diseases, 5; total from typhoid fever, 3; total from tubercular diseases, 21; total from diarrhœal diseases, 4; total from malarial diseases, 26.

No.

J. O. HESS,
Health Officer.

---

1. GALION.
2. Eight thousand five hundred. (8,500.)
3. (a) Driven wells, water works, also dug wells.
   (b) Two hundred thousand gallons from water works.
   (c) Pickel run.
   (d) Sewerage in the houses of city.
4. (a) Largest per cent. of manufactured ice. Balance reservoir ice and creek ice.
   (b) No.
   (c) None.
5. (a) Three and one-half miles.
   (b) Combined 2,400 feet.
   (c) One.
   (d) Whetstone creek.
   (e) Forty.
   (f) To drain Pickel run, under the city's care.
6. (a) Yes.
   (b) Once a year.
   (c) Hauled to the farm lands in the country and buried.
   (d) No.
   (e) No.
   (f) Smead's system in school buildings.
7. (a) To haul away daily.
   (b) No expense to city.
   (c) Daily if ----------

gr

(b) Sixty-two.
(c) None.
(d) No prosecutions.
9. (a) None.
(b) No.
(c) No.
(d) Principally all and found in good condition.
(e) None.
(g) No prosecutions. None.
(h) No cases to decide. None.
10. Sewerage which is under way for the coming summer.

Mortality statistics for 1896.—Total number deaths, 83; total from contagious diseases, 13; total from typhoid fever, 2; total from tubercular diseases, 7; total from diarrhœal diseases, none; total from malarial diseases, 2.

Yes.

A. BROKAW,
Health Officer.

---

1. HAMILTON.
2. 22,000.
3. (a) Driven wells.
(b) 1,500,000 gallons.
(c) None.
(d) None.
4. (a) 30 per cent.
(b) It is river water.
(c) None.
5. (a) 17 miles.
(b) Separate system.
(c) Three.
(d) Below the city limits into the Miami river.
(e) 181.
(f) None.
6. (a) No.
(c) Taken out of city limits and buried.
(d) No.
(e) Not to my knowledge.
(f) None.
7. (a) Garbage and ashes are collected in same vessel and taken to the city dump.
(b) To $6,900 for removal only must be added $1,500 for covering garbage, etc., in city dump, making $8,400.
least twice a week.
(d) It is dumped with ashes, etc., and then covered.
(e) The city is granted the privilege as long as same is covered.
8. (a) No record.
(b) No record.
(c) None.
(d) None.
9. (a) One.
(b) No.
(c) No.
(d) No.
(e) No record, December, 96—4 examined.
(f) One below standard.
(g) None.
(h) None.

Yes.

DR. J. S. H. POTTER,
Health Officer.

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1. IRONTON.
2. 12,000.
3. (a) Ohio river, many use cisterns.
(b) 1,600,000 gallons a day from water works.
(c) Privy vaults and few sewers emptying into river about water works.
(d) Are closing all such places.
(e) Board of Health now considering means to totally eradicate it.
4. (a) Artificial ice mostly used, some brought from the lakes.
(b) No (except by ammonia and cresote from ice factory)
5. (a) Brick main sewer 1½, local mains 2½. Total four miles.
(b) Combined.
(c) One.
(d) Ohio river.
(e) About 250 water closets—vaults not permitted to be connected with sewers.
(f) General extension, all now under way for part of the city.
6. (a) No. Dig down to gravel.
(b) When contents come within three feet of surface.
(c) Carried out of the city and dumped in country.
(d) Clean down three feet, then fill.
(e) No.
(f) Very few.

7. (a) Ordinary city garbage carts.
(b) $497.96.
(c) Every day if possible, carts taken off several months ago. No funds.
(d) Removed to city dump.
(e) Yes.
8. (a) Predecessor lost records.
9. (a) None.
(b) Yes.
(c) Yes.
(d) No.
(e) None.
(g) None.
10. Sewer the city and close all privies on river bank above water-works not having vaults. Part of the city already sewered.

Mortality statistics for 1896.—Total number deaths, 237; total from contagious diseases, 16; total from typhoid fever, 8; total from tubercular diseases, 25; total from diarrhœal diseases, 9; total from malarial diseases, 1.

GILMAN R. DAVIS, M. D.
Health Officer.

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1. JACKSON.
2. 6,000.
3. (a) Wells and cisterns.
4. (a) Consume manufactured ice.
(b) No.
5. (a) No sewerage.
6. (a) Have not been but are now.
(b) Cleaned when necessary.
(c) Carted outside of city limits in water tight vessels.
(d) No.
(e) No.
(f) About 5 per cent.
7. (a) Removed by the city.
(b) Being done by the city, we have no means of knowing.
(c) Removed when necessary.
(d) All offensive matter is buried.
(e) Lease the land.
8. (a) No account has been kept.
(b) All that have been reported.
(c) Two.
(d) Two.
9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.
(f) None.
10. Water work and sewerage.

Mortality statistics for 1896.—Total number deaths, 97; total from contagious diseases 14; total from typhoid fever, 3; total from diarrœal diseases, 5; total from malarial diseases, 1.

Yes.

W. H. WILLIAMS,
Health Officer.

---

1. KENTON.
2. 8,000.
3. (a) Artesian wells.
(b) About 750,000 gallons.
(c) None.
4. (a) All.
(b) No.
5. (a) About eight miles.
(b) Combined system.
(c) Five.
(d) Scioto river.
(e) About all connected within sewer district.
(f) None.
6. (a) In sewer district, yes; where not in district, no.
(b) Whenever necessary.
(c) Hauled out of city limits and covered with earth.
(d) Yes.
(e) No.
(f) About 500.
7. (a) Garbage is removed with a one horse wagon.
(b) $448.63.
(c) Every day from May 1, to December 1.
(d) Is hauled out of city limits and burned.
(e) The city leases the land.
8. (a) Do not allow any.
9. (a) Have none.
(b) No.
(c) No.
(d) No.
(e) None.
(g) None.
(h) None.
10. None.

Mortality
from con

Total number of cases of scarlet fever, 42.

Total number of deaths from scarlet fever none.

Total number of diphtheria cases, 82.

Total number of deaths from diphtheria, 13.

Yes.

C. J GRIFFITH,
Health Officer.

---

1. LIMA.
2. 22,000.
3. (a) Supposed spring water. Surface and deep wells for deficiency.
   (b) 1,250,000 gallons.
   (c) None except possibly some surface drainage.
   (d) None.
4. (a) Almost all.
   (b) Not especially.
   (c) None.
5. (a) About 20 miles.
   (b) Combined.
   (c) Sixteen.
   (d) Ottawa river.
   (e) Impossible.
   (f) A complete system.
6. (a) No
   ( ) About every twelve months.
   (c) Buried at city garbage grounds.
   (d) Yes, but not supposed to.
   (e) No.
   (f) Three-fourths of all, possibly.
7. (a) Done by the one that has the garbage, not by the city.
   (c) As often as it is necessary from accumulation.
   (d) Deposited at city dump grounds, burned or buried as easiest to accomplish.
   (e) Lease.
8. ( ) 350.
   (b) 278.
   (c) None.
9. (a) None.
   ( ) No.
   (c) No.
   (d) No.
   (e) None.
   (f) None.
   (g) None.
   (h) None.
10. Removal of ashes, paper, etc., from streets and alleys and cremating to dispose of rubbish instead of burying same.

Mortality statistics for 1896.—Total number of deaths, 299; total from contagious diseases, 7; total from typhoid fever, 13; total from tubercular diseases, 43; total from diarrhœal diseases, 37; total from malarial diseases, 3.

Yes.

DR. L. F. LAUDICK,
Health Officer.

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1. LORAIN.
2. 10,000.
3. (a) Lake Erie.
   (b) 2,000,000.
   (c) Sewage emptying into Black river and reaching intake.
   (d) Sewage purification.
4. (a) Three-fourths.
   (b) It is.
   (c) None.
5. (a) Twelve and one-half.
   (b) Both.
   (c) Two.
   (d) One near mouth of river and one about three miles from mouth.
   (e) 520.
   (f) Need about twenty miles more sewerage and sewage disposal.
6. (a) New vaults must be water tight.
   (b) When necessary.
   (c) Taken away and mixed with earth or plowed under.
   (d) Yes.
   (e) No.
   (f) Don't know.
7. (a) Contract is let in April for moving garbage for season with specifications as to disposal, etc.
   (b) $478.75.
   (c) Twice a week.
   (d) Greater part of it is plowed under.
   (e) No. The contractor furnishes the land.
8. (a) 850.
   (b) 650.
   (c) None.
9. (a) None.
   (b) No.
   (c) No.

(d) No.
(e) Six.
(f) None.
(g) None.

10. Sewage disposal would very much lessen the danger of water pollution. Yet we now have mechanical filters in operation that are guaranteed to remove 97 per cent. of bacteria.

Mortality statistics for 1896.—Total number deaths, 125; total from contagious diseases, 16; total from typhoid fever, 9; total from tubercular diseases, 12; total from diarrhœal diseases, 16.

I do.

DR. S. S. COX,
Health Officer.

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1. MARIETTA.
2. 15,000.
3. (a) Middle Ohio river above city.
   (b) 900,000 gallons.
   (c) None.
   (d) None.
4. (a) None.
5. (a) Seven miles.
   (b) Combined.
   (c) Two; 1 city proper; 1 West Marietta.
   (d) Into Ohio River. One above, other below Muskingum river.
   (e) 500.
   (f) None.
6. (a) No.
   (b) Once a year.
   (c) Taken to country.
   (d) No.
   (e) No.
   (f) Several hundred.
7. (a) At expense of property holders.
   (c) Summer, twice a week; winter, once a week.
   (d) Taken to country.
   (e) City does not own garbage ground, but is contemplating purchase.
8. (c) None.
9. (a) None.
   (b) Yes.
   (c) Yes.
   (d) No.
   (e) None.
   (f) None.
   (g) None.

Mortality statistics for 1896.—Total number deaths, 116; total from contagious diseases, 12; total from typhoid fever, 5; total from tubercular diseases, 10; total from diarrhœal diseases, 5.

DR. B. F. HART,
Health Officer.

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1. MARION.
2. 11,000.
3. (a) Taken from gravel reservoirs.
   (b) 521,034½.
4. (a) Taken from drilled wells.
   (b) No.
5. (a) Twelve miles.
   (b) Separate.
   (c) One.
   (d) Little Scioto.
   (e) One hundred and fifty.
   (f) No changes needed.
6. (a) No.
   (b) Every six months.
   (c) It is taken into the country and buried.
   (d) No.
   (e) No.
7. (a) The street commissioner removes all the garbage; he keeps a team hauling all the time.
   (b) It is at the expense of city, but cannot give cost.
   (d) It is taken into the country.
   (e) They lease the land.
8. (a) I could not tell, keep no account.
9. (a) Not any.
   (b) No.
   (c) They are not.
   (d) They are.
   (e) Not any.

Mortality statistics for 1896.—Total number deaths, 159; total from contagious diseases, 31; total from typhoid fever, 17.

I think the Board of Health should handle their own funds.

G. W. BLAIN,
Health Officer.

---

1. MARTINS FERRY.
2. 6,250.
3. (a) Ohio river.

(b) About 500,000 gallons.
(c) Sewers and small streams.
4. (a) Probably one-half.
(b) Yes.
(c) None.
5. (a) One-quarter mile.
(b) Separate.
(c) One.
(d) Ohio river.
(e) Ten.
(f) None.
6. (a) In some places, yes; others, no.
(b) Once every three or four years.
(c) Buried.
(d) No.
(e) No.
7. (a) None.
8. (a) Twenty-five.
(b) Twenty-five.
(c) None.
9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.
(g) None.
(h) None.
10. We need sewerage worse than anything else.

Mortality statistics for 1896.—Total number deaths, 118; total from contagious diseases, 3; total from typhoid fever, 7; total from tubercular diseases, 15; total from diarrhœal diseases, 7.

DR. J. W. DARRAH
Health Officer.

---

1. MASSILLON.
2. 13,000.
3. (a) Wells 200 to 300 feet deep
(b) Over 500,000 gallons.
(c) None, I think. The wells are drilled through rock practically their entire depth.
(d) To do away with the house wells and cisterns for drinking purposes.
4. (a) Use artificial ice for domestic purposes almost entirely.
(b) No.
5. (a) Perhaps three and a half to four miles of main.
(b) Separate.
(c) One.
(d) Tuscarawas river.
(e) No estimate.
(f) It should be extended as rapidly as possible.
6. (a) Yes, not always enforced.
(b) When they are full.
(c) On farms outside city limits.
(d) No.
(e) No.
(f) None I think.
7. (a) No systematic arrangement.
(c) None.
(d) Taken outside limits.
(e) No.
8. (a) Three hundred and sixteen.
(b) All.
(d) Eleven.
9. (a) None.
(b) No.
(c) No.
(d) No.
(g) None.
10. Regulation of milk supply.

Mortality Statistics for 1896.—Total number of deaths, 109; total from contagious diseases, 14; total from typhoid fever, 6; total from tubercular diseases, 12; total from diarrhœal diseases, 11.

Yes.

DR. T. CLARKE MILLER,
Health Officer.

---

1. MIDDLETOWN.
2. 10,000.
3. (a) Holly system obtained from large well.
4. (a) All.
(b) Ice ponds all supplied from M. & E. canal.
5. (a) About three miles.
(b) Combined.
(c) Three.
(d) Big Miami river.
(e) Seventy-five or one hundred.
(f) Making additions now.
6. (a) Yes, in specified area to water-works.
(b) Whenever two-thirds full.
(c) Dumped into river.
(d) No.
(e) Not unless properly arranged.
(f) None.
7. (a) Carried to river or out of town

in tight barrels.

(b) Personal expense.

(c) Carriers give bond and remove every two or three days.

(d) Dumped into river or carried out of town on city land.

(e) Own land.

8. (a) No record of number.

9. (a) None.

(b) No.

(c) No.

(d) No.

(e) None.

Mortality Statistics for 1896.—Total number of deaths, 120; total from contagious diseases, 4; total from typhoid fever, 2; total from tubercular diseases, 28; total from diarrhœal diseases, 12; total from malarial diseases, 1.

Yes.

DR. G. D. LUMMIS,
Health Officer.

---

1. MT. VERNON.

2. 7,000.

3. (a) Artesian wells.

(b) 750,000 gallons.

(c) None.

(d) None.

4. (a) A portion of ice used is artificial. The greater part is taken from waters outside, but near the city limits.

(b) Yes. The ice ponds are fed by running streams, and are used for skating.

(c) None.

5. (a) Two and one-eighth miles, not including house connections.

(b) Combined.

(c) Four.

(d) Kokosing river.

(e) 150.

(f) One district in the city is sewered; the other three are not; council expects to put in 14½ miles in the east district; much needed.

6. (a) No

(b) Not allowed to fill within four feet of the surface.

(c) Either buried or used as fertilizer on farms.

(d) Do not know.

(e) A few wells are now so used.

(f) None.

7. (a) Garbage is removed by the property owner or tenant.

(c) No stated time. We endeavor to have no accumulation of noxious or offensive material.

(d) Burned or buried.

(e) Lease.

8. (a) 100, including 82 hog pens which we consider nuisances.

(b) 20.

(c) None.

9. (a) None.

(b) No.

(c) No.

(d) No.

10. We need about 20 or 25 miles of sewer. In the east district the cellars are wet, and during heavy rains the privy vaults overflow.

Mortality statistics for 1896.— Total number of deaths, 80; total from contagious diseases, 5; total from typhoid fever, 2; total from tubercular diseases, 8; total from diarrhœal diseases, 3.

Yes.

DR. HARRY W. BLAIR,
Health Officer.

---

1. NELSONVILLE.

2. 5,000.

3. (a) Wells—supplied from Hocking river.

(b) 150,000 gallons.

(c) None.

(d) None.

4. (a) The ice plant gets its supply from river within city limits.

(b) No.

(c) Not any.

5. (a) About 3½ miles.

(b) Separate system.

(c) One.

(d) One-half mile southeast of town, and into the Hocking river.

(e) Fifty.

(f) None.

6. (a) No.

(b) Yearly.

(c) Buried.

(d) Yes.

(e) No.

(f) Very few.

7. (a) Street commissioner.
(c) At the order of health office.
(d) Buried beyond city limit.
(e) No.
8. (a) Thirty-two.
(b) Thirty-two.
(c) None.
(d) None.
9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.
(f) None.
(g) None.
(h) None.

Mortality statistics for 1896.—Total No. deaths, 59; total from contagious diseases, 2; total from typhoid fever none; total from tubercular diseases, 6; total from diarrhœal diseases, 6.

DR. A. L. PRITCHARD,
Health Officer.

---

1. NEWARK.
2. 15,000.
3. (a) North fork of Licking river by means of the Cook system of driven wells.
(b) Nearly 1,000,000 gallons daily.
(c) No known source of pollution.
4. (a) About one-fourth of our ice supply comes from the canal and is used by the saloons and butchers.
(b) Yes.
(c) The board of health has had the canal cleaned but no steps have been taken to prevent the sale of this ice.
5. (a) Six.
(b) Separate.
(c) Three.
(d) One discharges into north fork of Licking river and two into south fork, all within city limits.
(e) About 300.
(f) We need more sewerage, and what we have needs more frequent flushing.
6. (a) No.
(b) Vaults have not been cleaned except on complaint.
(c) It has been partly deposited on city dumping grounds and partly taken by farmers as fertilizer.
(d) Yes.
(e) None that we know of.
(f) Five.
7. (a) No definite arrangements have ever been made for the removal of garbage except the provision of dumping grounds.
(c) No rule adopted.
(d) Simply dumped on the dumping ground and allowed to rot.
(e) City leases the ground.
8. (a) 889. This was the number of complaints to the board from all sources; over 200 were not considered nuisances by board, and there remain about 50 subject to future action by the board of health.
(b) 625.
(c) None.
(d) None.
9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.
(g) None.
10. The enforcement of law relative to plumbing and sewer tapping, rules or orders for cleaning vaults, disposing of garbage; inspection of dairies, milk and meats.

Mortality statistics for 1896.—Total number deaths, 259; total from contagious diseases, 33; total from typhoid fever, 6; total from tubercular diseases, 39; total from diarrhœal diseases, 21; total from malarial diseases, 4.

Our board of health voted unamiously in favor of such law.

DR. J. P. H. STEDEM,
Health Officer.

---

1. NEW PHILADELPHIA.
2. 6,000.
3. (a) Wells.
(b) Hydrant 350,000 gallons.
4. (a) A very small proportion, if any.
(b) No.
5. (a) Three.
(b) Separate.
(c) Three.

(d) Into the Tuscarawas river below the city.

(e) 200.

(f) No changes.

6. (a) No.

(b) As often as necessary, in some cases.

(d) Yes.

(e) No.

7. (a) No particular arrangements. Partly at expense of city.

(c) From once a day to twice a year —modified by location.

(d) Taken some distance out of the city to be burned. Some burned in the city.

(e) City owns two acres.

8. (a) 57.

(b) All.

(c) None.

(d) No prosecutions.

9. (a) One.

(b) No.

(c) Yes.

(d) Yes.

(e) None.

(g) None.

(h) None.

10. Rigid enforcement of present rules and regulations.

Mortality statistics for 1896.—Total number deaths, 62; total from contagious diseases, 11; total from typhoid fever, 11; total from tubercular diseases, 12; total from diarrhœal diseases, 10; total from malarial diseases, 8.

P. H. SIGRIST, M. D.,
Health Officer.

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1. NILES.

2. 7,000.

3. (a) Deep drilled wells.

(b) 250,000 gallons.

(c) Hydrants are not properly flushed.

(d) That the street hydrants be tapped once a month. Reservoir flushed once in two months in summer months.

4. (a) All taken about one-half mile above city, of Mosquito creek.

(b) A small sewer empties one-fourth mile below the place ice is cut.

(c) We consider the ice as good as is possible to get from streams.

5. (a) Scarcely one-half mile.

(b) No system.

(c) Two.

(d) One into a mill dam, one into Mosquito creek, one into Mahoning river.

(e) Not to exceed twenty.

(f) Needs the city sewered complete.

6. (a) Yes.

(b) About one in two years.

(c) Taken out after midnight in tanks and used on farm land.

(d) No.

(e) No.

(f) About one-half dozen.

7. (a) Each man removes his own.

(b) Individual expense.

(c) Every week in warm months.

(d) Taken to dumping ground of city one-half mile from city limits.

(e) Donated, city.

8. (a) About twelve.

(b) Twelve.

(c) None.

(d) One.

9. (a) None.

(b) None has yet been, will be soon.

(c) Yes.

(d) Yes.

(e) About eight.

(f) None.

(g) None.

(h) None.

10. City sewerage.

Mortality statistics for 1896.— Total number deaths, 103; total from contagious diseases 13; total from tubercular diseases, 1; total from diarrhœal diseases, 6; total from malarial diseases, 2.

We do.

DR. C. C. WILLIAMS,
Health officer.

---

1. NORWALK.

2. 8,000.

3. (a) Peru creek.

(b) 1,500,000 gallons

(c) Ordinary farm drainage.

4. Nearly all.

(b) For drinking purposes it is taken from the lake.

5. (a) Eleven.
(b) Combined.
(c) Two.
(d) South side drainage discharges into Norwalk creek, then into east branch of Huron river. North side drainage discharges into east branch of Huron river through small streams.
(e) About one-eighth.
(f) None.
6. (a) Yes.
(b) Once in six months.
(c) Outside of city.
(d) No.
(e) No.
(f) One-half.
7. (a) It is dumped outside of city.
(b) No expense.
(c) Every week.
(d) It is dumped on land.
(e) Lease.
8. (c) None.
9. (a) None. The health officer inspects.
(b) Yes.
(c) Yes.
(d) Yes.
(e) Three or four times per year.
(f) None.
(g) None.

Mortality statistics for 1896.—Total number of deaths, 74; total from contagious diseases, 4; total from tubercular diseases, 11; total from diarrhœal diseases, 1.

DR. E. MARTIN,
Health Officer.

---

1. NORWOOD.
2. 7,500.
3. (a) Driven wells.
(b) Two hundred thousand gallons.
(c) None.
4. (a) None.
5. (a) 13.
(b) Separate.
(c) Four.
(d) Bloody run and Duck creek.
(e) Three hundred.
6. (a) Yes.
(b) Every four months.
(c) Burned and buried.
(d) No.
(e) No.
7. (a) Taken up by wagons twice a week.
(b) Private.
(c) Buried and burned.
(e) No.
8. (a) Ten.
(b) Ten.
(c) None.
9. (a) None.
(b) No.
(c) No.
(d) By Cincinnati inspector.
(e) None.

Mortality statistics for 1896.—Total number of deaths, 72; total from contagious diseases, 6; total from typhoid fever, 5; total from tubercular diseases, 11; total from diarrhœal diseases, 9; total from malarial diseases, 1.

DR. J. C. CADWALLADER,
Health Officer.

---

1. OBERLIN.
2. 4,600.
3. (a) East branch of Vermillion river.
(b) 67,000 gallons.
(c) None.
(d) None.
4. (a) Nearly none.
(b) No.
(c) None.
5. (a) Eight miles.
(b) Separate.
(c) One.
(d) On sewer farm.
(e) Three hundred water closets.
(f) None.
6. (a) No.
(b) None.
(c) What little comes from privies is buried.
(d) One Smead dry closet.
7. (a) None.
8. (a) Ten.
(b) Ten.
(c) None.
9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.

(g) None.
(h) None.
10. None.

Mortality statistics for 1896.—Total number deaths, 52; total from contagious diseases, 5; total from typhoid fever, 3; total from tubercular diseases, 5; total from diarrhœal diseases, 1; total from malarial diseases, none.

Yes.

E. L. BURGE,
Health Officer.

---

1. PAINESVILLE.
2. 6,000.
3. (a) Lake Erie.
(b) Do not know.
(c) Grand River and Shore line.
(d) None at present.
4. (a) None.
(b) I think not.
(c) None, as we have not seen occasion to do so.
5. (a) About six miles.
(b) Separate.
(c) Three.
(d) Into Grand river.
(e) 321.
(f) Increased amount.
6. (a) Yes, where vaults are used.
(b) Twice a year.
(c) By contract in 1895 in 1896, taken outside city and used as fertilizer.
(d) No.
(e) No.
(f) About 1,000.
7. (a) We have none.
(d) Carted out of city.
(e) Neither.
8. (a) 40 or 50.
(b) All.
(c) None.
(d) None
9. (a) None but health officer.
(b) Yes.
(c) Yes.
(d) No.
(e) 10.
(f) None.
(g) None.
(h) None.
10. More sewers.

Mortality statistics for 1896.—Total number deaths, 77; total from tubercular diseases, 9; total from diarrhœal diseases, 1,

DR. D. J. MERRIMAN,
Health Officer.

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1. PIQUA.
2. 12,000.
3. (a) Hydraulic, comes from canal, four miles north.
(b) Cannot say.
(c) Everything in it, even hogs and dogs, all manner of weeds, etc.
(d) We tried to get wells but failed. No change recommended.
4. (a) All.
(b) Yes.
(c) None.
5. (a) Two.
(b) Combined.
(c) Three.
(d) Miami river.
(e) Cannot say, but may yet.
(f) We need more sewerage.
6. (a) Yes.
(b) Seem as full.
(c) Taken in country, put on land.
(d) No.
(e) No.
(f) Cannot say.
7. (a) Men hired to haul it away.
(b) No expense.
(c) Every day.
(d) Hauled to country and different places from city limits.
(e) No.
8. (a) 150.
(b) 100.
(c) None.
(d) None.
9. (a) One.
(b) Yes.
(c) Yes.
(d) Yes.
(e) Cannot say.
(f) None.
(g) None.
(h) None.
10. Old buildings should be renovated. Great many yards need filling, etc.

Mortality Statistics for 1896.—Total from contagious diseases, 13; total

typhoid fever, 10; total from tubercular diseases, 15; total from diarrhœal diseases, 10.

DR. W. N. UNKEFER,
Health Officer.

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1. POMEROY.
2. 5,000.
3. (a) River, spring and cisterns.
4. (a) None, all is furnished by plant.
5. (a) One or two.
   (b) Separate.
   (c) Impossible—nearly one for each house along the river.
   (d) Ohio river.
   (e) 25 or 30.
   (f) Some should be extended to low water mark.
6. (a) No.
   (d) Yes.
   (e) No.
7. (a) None.
8. (a) 43.
   (b) 40.
   (c) None.
   (d) None.
9. (a) None.
   (b) No.
   (c) No.
   (d) No.
   (e) None.
   (f) None.
   (g) None.
   (h) None.

Mortality statistics for 1896.—Total number deaths, ——; total from contagious diseases, 2; total from typhoid fever, 6; total from tubercular diseases, 4; total from diarrhœal diseases, 1; total from malarial diseases, 1.

DR. R. E. STOBART,
Health Officer.

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1. PORTSMOUTH.
2. 18,000.
3. (a) Holly system waterworks, owned by city, pumping direct from Ohio river.
   (b) 2,500,000 gallons daily.
   (c) None.
   (d) None.
4. (a) About one-fourth, balance artificial and made here.
   (b) The natural supply from Scioto river is more or less contaminated by sewage.
   (c) Don't know, the contamination being from up river towns, and the ice not used here for domestic purposes.
5. (a) About two miles.
   (b) Both, mostly separate surface water sewers.
   (c) Nine.
   (d) Scioto river.
   (e) 28 or 30 by special permission.
   (f) We are advocating complete system of surface drainage for the present.
6. (a) No.
   (b) Annually.
   (c) Ditched and covered, and some dumped on sand bar.
   (d) They are not.
   (e) No.
   (f) 25.
7. (a) Garbage contract system, city divided into 7 precincts under city ordinance.
   (b) $2,535.06.
   (c) Daily in business portion of city, tri-weekly in residence portions.
   (d) Thrown on the dumps Scioto river banks, western part of the city.
   (e) Owns some, leases some, some private grounds.
8. (a) 273.
   (b) 248.
   (c) None.
   (d) None.
9. (a) One.
   (b) Yes.
   (c) Yes.
   (d) Yes.
   (e) 287.
   (f) 12.
   (g) None.
   (h) None, our laws were lame and new ones passed.
10. A thorough system of surface drainage, a fertilizer plant or garbage crematory and the control of the street cleaning department.

Mortality statistics for 1896.—Total number deaths, 322; total from contagious diseases, 39; total from typhoid

fever, 10; total from tubercular diseases, 76; total from diarrhœal diseases, 29; total from malarial diseases, 4.

We are in favor of above.

DR. JOS. SWANDER,
Health Officer.

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1. SALEM.
2. 8,000.
3. (a) Springs and wells.
   (b) 325,000 gallons.
4. (a) None.
   (c) We require an analysis of each crop of ice by a competent chemist.
5. (a) Four miles.
   (b) Combined.
   (c) Two.
   (d) Small creek.
   (e) 200 closets, 15 vaults.
   (f) General sewerage system.
6. (a) Yes.
   (b) Every three to six months.
   (c) Used as a fertilizer outside the city.
   (d) No.
   (e) No.
   (f) None.
7. (a) Barrels with water tight covers.
   (b) Not at city's expense.
   (c) When found needing cleaning by sanitary police. In general every three days.
   (d) Deposited upon land out of city.
   (e) No.
8. (a) 1,500.
   (b) Don't know.
   (c) None.
   (d) None.
9. (a) One.
   (b) Yes.
   (c) Yes.
   (d) Yes.
   (e) None.
   (f) None.
   (g) None.
   (h) None.
10. A system of sewerage.

Mortality statistics for 1896.—Total number deaths, 87; total from contagious diseases, 5; total from typhoid fever 5; total from tubercular diseases, 7; total from diarrhœal diseases, 6.

Yes.

DR. F. T. MILES,
Health Officer.

---

1. SANDUSKY.
2. 23,000.
3. (a) Yes, from Sandusky bay.
   (b) 3,781,000 gallons.
   (c) As new sewers are being added to discharge their contents into the bay so there can be no question about some contamination at times from said source.
   (d) To lower and extend the influent pipe further into the bay or lake.
4. (a) The greater portion.
   (b) To only a very small extent as ice takes up only 1-10 of the impurity of the water.
   (c) To go further out into said bay. Some of the ice gathered this year 1½ miles out into the bay.
5. (a) 31¼ miles.
   (b) Separate and in districts.
   (c) Sixteen main outlets.
   (d) Sandusky bay.
   (e) 750.
   (f) The change, if any, would be an intercepting sewer, constructed of sufficient size to carry all the drainage from every sewer to the extreme east side of city into Pipe Creek.
6. (a) Yes, as nearly water-tight as possible.
   (b) Once each week and oftener if necessary.
   (c) The board of health enters into a contract with a person or persons to remove the same into the country and plow it over a foot below the surface of the ground.
   (d) No. First cleaned and then filled with earth.
   (e) No.
   (f) Not over ten.
7. (a) No special contract but removed by barrels, in wagons, covered up, and carts with covers over same.
   (d) Removed by persons keeping hogs.
8. (a) Can't give in exact number.
   (b) All abated.
   (c) None.
9. (a) One.

(b) Yes.

(c) Yes.

(d) Yes.

(e) 920.

(f) Only a few.

(g) None. If the milk was below the standard the vendor was ordered to appear at health officer's office, etc.

10. The general sanitary condition of our city is good. The extension of the water works influent pipe will, in time, become necessary.

Mortality statistics for 1896.—Total number deaths, 174; total from contagious diseases, 34; total from typhoid fever, 4; total from tubercular diseases, 15; total from diarrhœal diseases, 5; total malarial diseases, 1.

Yes.

C. EUGENE STROUD, M. D.,
Health Officer.

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1. SIDNEY.

2. 6,000.

3. (a) Deep wells.

(b) 450,000 gallons.

(c) None that we know of.

(d) None, except a more universal use of this water on the part of our people.

4. (a) About half.

(b) It is simply canal water which overflows a pond.

(c) None; can't say that there is any actual or special source of contamination.

5. (a) About one mile of private sewer.

(b) Separate.

(c) One.

(d) Into the Miami river, inside of the corporate limits.

(e) 20 to 30, including court house, jail, and one school building.

(f) A general sewerage system put in by the village corporation and which would give an outlet to entire village. The above sewer is owned by county and private individuals.

6. (a) Yes; by order of board of health.

(c) It is done by scavengers on permit from board of health, using water tight barrels, etc.

(d) Not permitted by board of health but has been done in a few instances.

(e) None to our knowledge.

(f) No means of knowing; not many.

7. (a) The board of health has sought to regulate this by an order, but employs no garbage men. The people pay for the work as it is done; make their own contracts.

(b) Not at expense of city.

(c) Twice a month in summer and once a month in winter.

(d) Much of it is fed to hogs—that is kitchen garbage. Other garbage is hauled to a dump provided by board of health.

(e) Have a contract to use it for garbage purposes or disposal.

8. (a) Kept no record of number.

(b) All that came up.

(c) None.

9. (a) Done by health officer or committee from board of health.

(b) Yes.

(c) Yes.

(d) Yes; at least once each year.

(e) Eight.

(f) None.

(g) None.

10. A general sewerage system. Survey and plans were made for same during the year, but have not been acted on by council.

Mortality statistics for 1896.—Total number of deaths, —; total from contagious diseases, 10; total from typhoid fever, 4; total from tubercular diseases, 8; total from diarrhœal diseases, 11; total from malarial diseases, 1.

DR EDWIN LE FEVRE.
Health Officer.

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1. SPRINGFIELD.

2. 38,000.

3. (a) From well and gallery through gravel to hard pan, on farm northeast of city.

(b) 2,500,000 gallons.

(c) Practically none; none possible save after filtration through soil, sand and gravel, above water vein.

(d) None, except extension of mains.

4. (a) None for family use. Some used for cold storage plants.

(b) Yes; totally unfit for general use.

(c) None.

5. (a) Seven and three-tenth miles.

(b) Combined.

(c) Six.

(d) Into Lagonda creek, and into Mill run, discharging into Lagonda creek, and is itself practically a sewer.

(e) Probably 600 or 700; no reco d reliable.

(f) Whole system bad. Mill run should be abandoned as a sewer and proper outlets secured; not in the city.

6. (a) No.

(b) Only when offensive or full.

(c) Hauled out of city and disposed of any way most convenient to hauler. Some made into fertilizer.

(d) Yes, in the past. Ordinance now being considered to prevent this.

(e) Yes: in a few cases.

(f) None.

7. (a) Hauled out of city at agreed price per wagon per day.

(b) About $2,200.

(c) As often as the wagons can get around or complaint is made. No rule.

(d) Taken some 3 miles from center of city; fed to hogs, etc.

(e) No; land owned by teamster.

8. (a) Eleven hundred and twenty-nine.

(b) Eleven hundred and twenty-nine.

(c) Three.

(d) Three.

9. (a) None.

(b) No.

(c) No.

(d) No; none.

(e) None.

(g) None.

10. Proper sewers; milk and dairy inspection; extension of water mains; water-tight privy vaults.

Mortality statistics for 1896.—Total number deaths, 426; total from contagious diseases, 41; total from typhoid fever, 11; total from tubercular diseases, 56; total from diarrhœal diseases, 27; total from malarial diseases, 1.

DR. HENRY H. SEYS,
Health Officer.

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1. STEUBENVILLE.
2. 13,000.
3. Ohio river.
4. (a) Two-thirds.
   (b) No.
6. (a) No.
   (d) Yes.
7. (a) No system.
9. (a) None.
   (b) No.
   (c) No.
   (d) No.
   (e) None.
   (g) None.

Mortality statistics for 1896.—Total number deaths, 45; total from contagions diseases, 7; total from typhoid fever, 4; total from tubercular diseases, 6.

D. E. HALSTEAD,
Secretary.

---

1. TIFFIN.
2. 14,000.
3. (a) Wells.
   (b) 950,000 gallons (hydrant).
   (c) None.
   (d) None.
4. (a) One-third.
   (b) Yes.
   (c) None.
5. (a) Twenty (20).
   (b) Combined.
   (c) Seventeen (17).
   (d) Sandusky river.
   (e) Nine hundred and fifty.
   (f) None.
6. (a) Yes.
   (b) About once in two years.
   (c) Buried outside of city limits.
   (d) No.
   (e) No.
   (f) Four hundred.
7. (a) Hauled out of the city limits three times a week.
   (b) $725 00.
   (c) Three times a week.

(d) Fed to hogs.

(e) On land and is taken care of by a farmer.

8. (a) About five when the board was called to investigate.

(b) Five.

(c) No prosecutions.

9. (a) One (1).

(b) Yes.

(c) Yes.

(d) Yes.

(e) Fifty.

(f) None.

(g) None.

10. None to offer at the present time.

Mortality statistics for 1896.—Total number deaths, 163; total from contagious diseases, 4; total from typhoid fever, 10; total from tubercular diseases, 16; total from diarrhœal diseases, 1.

J. W. RUSSELL, M. D.
Health Officer.

---

1. TOLEDO.

2. 137,780.

3. (a) Maumee river, artesian and surface wells.

(b) Waterworks 9,500,000 gallons daily. Wells cannot say.

(c) Sewers

(d) I am not able to specify changes if any are practicable.

4. (a) About one-half.

(b) Not particularly.

(c) One year ago last winter all ice from this vicinity was analyzed and found good.

5. (a) About 121 miles.

(b) Combined.

(c) About 25.

(d) Maumee river, Swan creek, M. & E. canal, Ottawa river.

(e) About 10,000.

(f) I am not sufficiently acquainted with the present extensive system to suggest changes. This is the duty of the city engineer.

6. (a) No.

(b) About every two years.

(c) Used on farms as fertilizer.

(d) No.

(e) No.

(f) None that I know of.

7. (a) By counsel contract.

(b) $6,900.00.

(c) Three times a week within one mile of postoffice, two a week outside.

(d) Taken into county for fertilizer.

(e) City does not.

8. (a) Inspections 43,457 with 20,704 nuisances.

(b) 20,704.

(c) Seven.

(d) Six.

9. (a) One city chemist.

(b) None.

(c) Kept by city chemist to best of his ability considering changes in business.

(d) Yes, with State Food Inspector.

(e) 198.

(f) Ten.

(g) None. Reason for non-prosecution—they were too close to the standard or for want of sufficient evidence.

(h) None.

10. We most need money enough to pay expenses of the department.

Mortality statistics for 1896.—Total number deaths, 1,473; total from contagious diseases 76; total from typhoid fever, 37; total from tubercular diseases, 125; total from diarrhœal diseases, 99; total from malarial diseases, 11.

Yes, and the amount based on the expense for the year as estimated by board of health.

DR. J. T. WOODS,
Health officer.

---

1. TROY.

2. 5,000.

3. (a) Holly system pump from wells.

(b) Don't know.

(c) None.

4. (a) Three-fourths.

(b) Yes.

(c) None.

5. (a) None.

(b) Neither.

(c) None.

(f) Need a sewer system.

6. (a) Yes.

(b) Every two years.

(c) Buried.
(d) No.
(e) No.
(f) None that I know of.

7. (a) Removed by a tank wagon. Hauled to country.
(b) $445.00.
(c) Once in winter and twice a week in summer.
(d) Fed to hogs or used us compost.
(e) On land not owned by city.

8. (a) About twenty-five.
(b) All.
(c) None.

9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.
(g) None.

10. A system of sewerage is needed.

Mortality Statistics for 1896.—Total number deaths, —; total from contagious diseases, 12; total from typhoid fever, none; total from tubercular diseases, 14; total from diarrhœal diseases, 4; total from malarial diseases, none.

Yes, I favor such legislation.

DR. THOS. M. WRIGHT,
Health Officer

---

1. URBANA.
2. 7,500.
3. (a) Holley system—eight wells, supplied by springs.
(b) 900,000 gallons.
(c) None

4. (a) None. All that is sold is manufactured from distilled water.
(b) No.

5. (a) None.
(f) A complete system is badly needed.

6. (a) No.
(b) Annually.
(c) Is hauled in closed barrels to country.
(d) No.
(e) No.
(f) About 50.

7. (a) It is collected semi-weekly in the thickly settled portions of the city in barrels on which are lids and hauled to the suburbs.
(d) A portion is fed to hogs in suburbs or outside of city limits.
(e) Leased.

8. (a) Two hundred and ninety-five.
(b) Two hundred and seventy-seven.
(c) Two.
(d) Two.

9. (a) None.
(b) No.
(c) No.
(d) No.
(e) None.

Mortality statistics for 1896.—Total number deaths, 90; total from contagious diseases, 3; total from typhoid fever, 3; total from tubercular diseases, 7; total from diarrhœal diseases, 4; total from malarial diseases, 3.

Yes.

DR. H. C. HOUSTON,
Health Officer.

---

1. VAN WERT.
2. 7,000.
3. (a) Artesian wells.
(b) 140,000.
(c) None.

4. (a) About one-half.
(b) None that comes in contact with food or drink.
(c) None. All ice that might be contaminated is used only in meat market coolers, etc.

5. (a) About eight miles.
(b) Combined.
(c) About twelve.
(d) Town creek, or a stream that runs through the center of town and goes dry in dry times except when kept flooded with hydrant water.
(e) Thirty-eight.
(f) An outlet below city through main single sewerage system.

6. (a) No, but tiling of all vaults to carry off water is required.
(b) Two years.
(c) Carried outside of corporate limits and buried when not used as fertilizer.
(d) No.

(e) No.
(f) About twenty-five.

7. (a) Mostly by persons for hog feed. Will recommend council to pay a bonus to garbage gatherers next spring.
(c) Frequent enough for cleanliness where much accumulates.
(d) Some fed to swine. Some is buried outside city.
(e) City does not own or lease for that purpose.

8. (a) No record is kept of them.
(b) No record.
(d) No prosecutions.

9. (a) None.
(b) No.
(c) No.
(d) Only when complaint is made.
(e) None by board of health.
(f) None by board of health.
(g) None by board of health.
(h) None.

10. A sewer system and provisions for a proper disposition of garbage is needed

Mortality statistics for 1896. — No record kept by by board of health.

DR. E. L. WILKINSON,
Health Officer.

---

1. WARREN.
2. 9,000.
3. (a) Mahoning river.
(b) 50,000 barrels.
(c) Young's run.
(d) None.
4. (a) Three-fourths.
(b) Yes.
(c) None.
5. (a) Fifteen miles.
(b) Both.
(c) Six.
(d) Mahoning river.
(e) Five hundred.
(f) Market street outlet ought to be changed to lower part of city.
6. (a) Yes.
(b) Annually or oftener.
(c) Taken to dump ground and composted and sold to farmers.
(d) No.
(e) No.
(f) Eight hundred and ninety-six.
7. (a) No particular arrangements.
(c) Before it becomes a nuisance.
(d) Conveyed to dump grounds.
(e) City owns land.
8. (a) Five hundred.
(b) All.
(c) Twenty.
(d) Twenty.
(9) One.
(b) Yes.
(c) Yes.
(d) Yes.
(e) About one hundred.
(f) One.
(g) One.
(h) One.
10. Outlet of Market street sewer.

Mortality statistics for 1896.—Total number deaths, 61; total from contagious diseases 2; total from tubercular diseases, 6; total from diarrhœal diseases, 5; total from malarial diseases, 4.

Yes.

DR. M. L. WILLIAMS,
Health Officer.

---

1. WASHINGTON C. H.
2. 7,121 taken in 1895.
3. (a) Wells and water works; eighteen miles of water main in city.
(b) From water works, 400,000.
(c) None known at water works.
(d) None.
4. (a) None, all manufactured.
5. (a) Three miles estimated.
(b) Separate.
(e) Seven.
(d) Into Paint creek.
(e) About twelve.
(f) An entire new system.
6. (a) Some.
(c) Taken out of city.
(d) No.
(e) No.
(f) None.
7. (a) None—Each individual takes care of his own—has it taken out of the city.
(b) Not at expense of city.
(c) Removed when necessary.
(d) Placed on farm lands.
(e) City does not own it.

8. (a) Fifty, estimated.
(b) Fifty.
(c) None.
(d) None.
9. (a) None.
(b) No.
(c) No.
(d) Yes.
(e) None.
(f) None.
(g) None.
(h) None.
10. A system of sewerage.

Mortality statistics for 1896.—Total number deaths, 85; total from contagious diseases, 6; total from typhoid fever, 2; total from tubercular diseases, 18; total from diarrhœal diseases, 2.

Yes, by all means.

J. M. EDWARDS,
Health Officer.

---

1. WELLSTON.
2. 8,000.
3. (a) Raccoon creek and private wells.
(b) 100,000 gallons.
(c) None save that natural to a stream of water. No manufactures or other plants located above point of supply. No source of pollution to wells.
(d) A system of filtering water.
4. (a) Not any.
(b) No.
(c) Not necessary, not being used.
5. (a) Perhaps less than one mile.
(c) Two.
(d) One in a small stream the other in a street.
(f) More of them and larger.
6. (a) Yes.
(b) Once a year.
(c) Hauled out in sealed boxes after 10. p. m.
(d) No.
(e) Not but one reported.
7. (a) A garbage ground rented about one mile from city. Garbage hauled out and covered one ft. or more.
(c) Once a week or more frequent if necessary.
(d) As above.
(e) Leased.
8. (a) Near three hundred.
(b) All the above number.
(c) None.
9. (a) None.
(b) No.
(c) No.
(d) There are but two, and the cows are daily in an open pasture.
(e) Show they are properly kept.
(f) None.
(g) None.
10. General cleaning up of alleys.

Mortality statistics for 1896.—Total from contagious diseases, 12; total from typhoid fever, 2; total from tubercular diseases, 15; total from diarrhœal diseases, 4; total from malarial diseases, 8.

Yes.

A. D. WARD,
Health Officer.

---

1. WELLSVILLE.
2. 6,000.
3. (a) Ohio river.
(b) 280,000 gallons.
(c) All cities above Wellsville sewer into the Ohio river.
(d) To obtain water from some other source.
4. (a) All of it.
(b) Yes
(c) None.
5. (a) Have no system of sewerage.
6. (a) No.
(b) Average once in 5 years.
(c) Hauled out of city limits.
(d) No
(e) No.
7. (a) Each property owner or tenant has his own removed.
(c) As frequently as deemed necessary.
(d) Dumped into the Ohio river.
8. (a) 25
(b) 23.
9. (a) One
(b) Yes
(c) Yes.
(e) Yes.
(f) None.
10. Sewerage and disposition of garbage.

Mortality statistics for 1896 Total number of death, 78; total from con-

tagious diseases, 6; total from typhoid fever, 6; total from tubercular diseases, 13.

I am in favor of such a law.

J. T. WARREN,
Health Officer.

---

1. XENIA.
2. 8,500.
3. (a) Springs and wells.
   (c) Surface drainage.
4. (a) Three-fourths.
   (b) It is.
   (c) None.
5. (a) About one and three-fourths miles.
   (b) About four.
   (d) Surface water and water from down spouts.
   (e) None that the board is aware of.
   (f) None at present unless it is the putting in of an entire new sewerage system.
6. (a) Only in a part of the city.
   (b) About every three years.
   (c) Hauled outside of corporation and spread upon the ground as fertilizer.
   (d) No.
   (e) No.
   (f) None to my knowledge.
7. (a) No arrangements for removing garbage.
   (d) Each one having garbage hauls it away at his own expense to a place set aside for that purpose by the city.
   (e) The city owns the land.
8. (a) 360.
   (b) 360.
   (c) No prosecutions.
   (d) None.
9. (a) None.
   (b) No.
   (c) No.
   (d) No.
   (e) None.
   (f) None.
   (g) None.
   (h) None.

Mortality Statistics for 1896 - Total number of deaths, 130; total from typhoid fever, 5; total from tubercular diseases, 23; total from diarrhæal diseases, 9.

Yes.

DR. A. D. DE HAVEN,
Health Officer.

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1. YOUNGSTOWN.
2. 40,000.
3. (a) Mahoning river.
   (b) Used during the year 2,500,000 gallons.
   (c) Sewage and filth from towns on the stream above.
   (d) Sewage purification, change to separate system.
4. (a) One-third manufactured from distilled water, two-thirds from streams.
   (b) Yes.
   (c) None.
5. (a) Twenty three and one-tenth.
   (b) Combined.
   (c) Three outlets.
   (d) Into the Mahoning river within the city limits.
   (e) 1,622.
   (f) Needs complete change with end in view of purifying sewage.
6. (a) Yes.
   (b) Once in eighteen months.
   (c) Deposited on land outside the city.
   (d) No.
   (e) No.
   (f) Not more than fifty.
7. (a) Burned on a dumping ground.
   (b) Each householder removes his own.
   (c) No regular times for removal.
   (d) Carted to dumping ground and burned.
   (e) City owns land.
   (b) 1,404.
9. (a) One.
   (b) Yes.
   (c) Yes.
   (d) Yes.
10. (a) A system of garbage removal and better sewers.

Mortality statistics for 1896.—Total number deaths, 452; total from contagious diseases, 26; total from typhoid

fever [illegible] total from tubercular diseases, [illegible] total from diarrhoeal diseases, 45; [illegible] from malarial diseases, one.

[illegible]

DR. H. E. WELCH,
Health Officer.

[illegible] river, safe distance [illegible] gallons [illegible] the nearest town above [illegible] ce of 14 or 15 miles. [illegible] half [illegible] part is not. [illegible] was talked of at our [illegible] [illegible] [illegible] [illegible] [illegible] dried [illegible] system as far as [illegible] [illegible] years [illegible] [illegible] law

10. [illegible]

7. [illegible]
one mile [illegible]
and cover [illegible]
(c) [illegible]
if necessary.
(d) As [illegible]
(e) Leased
8. (a) Near th[illegible]

7. (a) The Board owns two regular garbage carts; they employ two men with teams to run them during the summer months.

(b) The Board pays these men three dollars a day each.

(c) Every two or three days.

(d) Farmers on either side of town keep hogs for the purpose of feeding the garbage.

(e) No.

8. (a) About 1,500.

(b) About 1,200.

(c) Two.

(d) Two.

9. (a) The sanitary policeman does it.

(b) Yes.

(c) Yes.

(d) Yes.

(e) Two hundred.

(f) None.

(g) None.

(h) None.

Mortality Statistics for 1896.—Total number deaths, 322; total from contagious diseases, 47; total from typhoid fever, 14; total from tubercular diseases, 26; total from diarrhoeal diseases, 4; total from malarial diseases, 5.

I do.

Dr. H. T. SUTTON,
Health Officer.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY.
COLUMBUS, OHIO, Dec. 31, 1896.

To the Health Officer:

Section 2136 of the Revised Statutes of Ohio makes it the duty of the board of health to make a report to the State Board of Health on or before the first Monday in March of each year; also to make such special reports as may be called for by said State Board.

It is more desirable in many ways that the annual reports should be made for the calendar year, and this is necessary in order that these reports may be published in the annual report of the State Board of Health; you are therefore respectfully requested to send your annual report as soon as possible after December 31, 1896.

Information in regard to subjects mentioned below is specially desired, but other useful information with special reference to sanitary matters in your community, will be gladly received.

An addressed envelope is enclosed for your reply.

Very respectfully,
C. O. PROBST, M. D.,
Secretary.

QUESTIONS.

1. Name of village.
2. Estimated population.
3. Amount expended by board of health during the year.
4. Amount paid to the health officer.
5. How many meetings were held during the year?
6. How many nuisances were investigated?
7. How many were abated?
8. Were your school houses examined as to their sanitary condition?
9. If so, in what condition were they found?
10. Does your board regulate the construction of privy vaults?
11. How are they usually constructed?
12. Does the board require privy vaults to be any given distance from wells?
13. If so, what is the required distance?
14. Are hog-pens permitted within corporate limits?
15. State in a general way, what is the present sanitary condition of your village and what changes or improvements you deem necessary?
16. How many cases of and deaths from the following contagious diseases were reported to your board for the year ending December 31, 1896.

CONTAGIOUS DISEASES.

Diphtheria and membranous croup.		Scarlet fever.		Typhoid fever.		Measles.		Whooping cough.	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

1. ADA.
2. 2,600.
3. Fifty dollars.
4. Thirty dollars.
5. Seven.
6. Sixty-three.
7. Forty-five.
8. Several times.
9. Very best. We have the Smead system.
10. No.
12. Not nearer than fifty feet.
13. Fifty feet.
14. Yes.
15. Very good. We have a good sewer pipe drainage of our town, last season we completed over one mile of sewer, averaging over 8 feet in depth, which completes our sewerage.
16. Diphtheria and membranous croup, 10 cases, 4 deaths; scarlet fever, 4 cases; typhoid fever, 10 cases.

W. H. MORROW,
Health Officer.

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1. ADDYSTON.
2. 1,800.
3. Cannot say.
4. Allowed five dollars per month by Health Board, but disputed by council who wants both officer and clerk to serve for twenty-five dollars per year.
5. Supposed to meet once per month.
6. I looked at four hog pens.
7. All of them with the return of cold weather.
8. Yes.
9. We have a good brick school house of 7 class rooms, heated by coal stoves with good ventilation.
10. None built since I took office, the place is not improving much.
11. Dug square about eight or ten feet deep, walled up with rock.
12. Our water supply is cisterns and hydrants.
13. Average about thirty feet.
14. Have been, but are doing away with them.
15. General health here is very good. A great many of the people depend on the pipe works here for a living, it has not been doing much lately and a great deal of destitution exists.
16. Diphtheria and membranous croup, 6 cases, 1 death; measles, 25 cases, 3 deaths; whooping cough, 30 cases, 6 deaths.

HUGH KENNEDY,
Health Officer.

---

1. ADELPHI.
2. 600.
3. Two dollars and ten cents.
4. One dollar and fifty cents.
5. Three.
6. Six.
7. Six.
8. No.
10. No.
11. Four to ten feet deep, walled with brick, or wood box.
12. No.
14. Yes.
15. Sanitary conditions good. To regulate the distance of privy vaults from wells.
16. Scarlet fever, 2 cases; Typhoid fever, 2 cases; 1 death.

W. W. ROUSE,
Health Officer.

---

1. AMELIA.
2. 400.
3. No expense during the year.
4. Does not receive pay.
5. No meetings held during year.
6. No investigation required.
7. None.
8. Yes.
9. Sanitary condition of school house good. We were troubled with the well. No contamination.
10. No.
11. Vaults above ground.
12. About one to two hundred feet from house.
14. This town not incorporated so cannot be regulated.
15. I believe the present sanitary condition is as good as can be until the town is incorporated, when I think there could be some improvement.
16. Diphtheria and membranous croup, 1 case; 1 death.

DR. W. B. DOAN,
Health Officer.

---

1. ARCANUM.
2. 1,500.
3. Fifty dollars.
4. Twenty-five dollars.
5. Eight.
6. Thirty-five.
7. Thirty-five.
8. They were.
9. Just medium.
10. They do.
11. With cement and sewer-pipe.
12. One hundred feet.
14. They are.
15. It is good except pigs pens, and I think we will have them removed.
16. Typhoid fever, 15 cases; 4 deaths.

E. B. HAWLEY,
Health Officer.

1. ARCHBOLD.
2. 900.
3. Thirty dollars.
4. Thirty dollars.
5. Two.
6. I have kept no record.
7. All necessary.
8. Yes.
9. We use the Smead dry closet system. It gives good satisfaction.
10. No.
11. Majority are constructed of boards. I have ordered new privy vaults to be constructed of brick and cement.
14. Yes.
15. Our surface wells should be condemned, hogs should not be allowed in thickly settled portion of village. Open railroad ditch should be sewered.
16. Diphtheria and membranous croup, 9 cases.

AUGUST RUIHLEV,
Health Officer.

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1. ARLINGTON.
2. 750.
3. Thirty dollars.
4. Thirty dollars.
5. Twelve.
6. Six.
7. All.
8. No. No cause.
10. Yes.
11. No vaults. Night soil removed.
12. No.
14. Yes. But kept clean.
15. Good with exception of water supply, which is not very good.
16. None.

J. S. ECCLESTON,
Health Officer.

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1. ASHLEY.
2. 500.
4. Fifty dollars.
5. Four.
8. Yes.
9. In good sanitary condition. Clean and well ventilated.
10. Yes.
11. Surface boxes are mostly used. Contents removed and buried.
12. The law is enforced in this particular.
14. Yes, but are required to be kept in good condition and offensive matter removed frequently.
15. Sanitary condition good. Increased surface drainage would do good. Careful observance in keeping collections of filth etc. out of water courses.

DR. H. N. COOMER,
Health Officer.

1. ASHVILLE, OHIO.
2. 300.
3. Twenty-five dollars.
4. Fifteen dollars.
5. Three.
6. Twenty.
7. Fifteen.
8. No.
10. Yes.
11. If within 50 feet of any well or source of culinary water supply, of brick well connected; beyond that distance, brick or boards or boxes. Option of owner.
12. Fifty feet.
14. Emphatically no.
15. Sanitary condition is good. The watchful eye of health officers will always be open for the still better improvment of our sanitary condition.
16. Scarlet fever, 6 cases; typhoid fever, 10 cases, 3 deaths.

JOHN JOHNSON,
Health Officer.

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1. ATHENS.
2. 3,500.
3. Two hundred and twenty-five dollars.
4. One hundred dollars.
5. Twenty.
6. Great many.
7. All were abated.
8. Yes.
9. The buildings were O. K. New sewer connections were made.
10. We do.
11. No vaults allowed on line of sewer. Off line of sewer 6 feet deep, hard brick, laid in cement and cemented inside and outside.
12. No.
14. No.
15. Sanitary conditions never better. Extension of sewerage system needed.
16. Diphtheria and membranous croup, 2 cases, 1 death; scarlet fever, 24 cases. typhoid fever, 5 deaths; whooping cough, 2 deaths.

Dr. J. L. HENRY,
Health Officer.

---

1. BARBERTON.
2. 3,500.
3. Two hundred and fifty-seven dollars and sixty-eight cents.
4. One hundred dollars.
5. Twenty-five.
6. Seventeen.
7. Seventeen.
8. Yes.
9. Good.
10. Yes.

11. Of brick and cement.
14. Yes. If kept in sanitary condition.
15. The sanitary condition is fair. The main sewer will likely be extended.
16. Diphtheria and membranous croup, 3 cases, 1 death; typhoid fever, 1 case.

I. C. DAVIDSON,
Clerk.

---

1. BEDFORD.
2. 1,500.
3. Sixty-five dollars.
4. Forty-five dollars.
5. Five.
6. One hundred and seventy-five.
7. About one hundred and seventy-five.
8. Only one.
9. That is well ventilated and kept in good sanitary condition.
10. No.
11. They all stand on the ground except two.
12. No, but they are mostly at back end of lot.
14. Yes, three on the outskirts of the village, by special permit, to be kept in sanitary condition.
15. I consider that Bedford is in as good sanitary condition as can be. The only thing we ought to have done is a sewer through the village.
16. Scarlet fever, 16 cases; typhoid fever, 4 cases.

C. W. KERSLAKE,
Health Officer.

---

1. BELLEFONTAINE.
2. 8,000.
3. About $300.
4. $150 per year; sanitary police $100 per year.
5. Five.
6. About 200.
7. All of them—except that of 'Possum Run.
8. Yes.
9. Fairly good, not absolutely perfect.
10. Yes, if necessary.
11. Just the ordinary vault, unless close to a well of water when they must be built of brick or stone and made water tight.
12. Yes.
13. Fifty feet.
14. They have been for the past two years.
15. Sanitary condition is as good as it can be with no system of sewerage. A good system of sewerage, and all the inhabitants to use city water, the very purest of water.
16. Diphtheria and membranous croup, 39 cases, 5 deaths; scarlet fever, 9 cases; typhoid fever, 18 cases, 3 deaths; whooping cough, 10 cases.

DR. C. W. HEFFNER,
Health Officer.

---

1. BELLEVUE.
2. 4,000.
3. About ninety dollars by council.
4. Fifty dollars.
5. Monthly.
6. About twelve.
7. All that were nuisances.
8. No.
10. No.
11. No fixed rule.
12. No wells in corporation except one or two.
14. Yes, if not a nuisance.
15. Fair.
16. Diphtheria and membranous croup, 9 cases, 5 deaths; scarlet fever, 1 case.

JESSE VICKERY,
Secretary.

---

1. BELMONT.
2. 500.
3. Seventy-five dollars.
4. Twenty dollars.
5. Five.
6. Fifteen.
7. Fifteen.
8. Yes.
9. Normal.
10. No.
11. Pits.
12. No.
14. Yes.
15 Very good.
16. Whooping cough, two cases; one death.

DAVID S. PIERCE,
Health Officer.

---

1. BETTSVILLE.
2. 650.
3. About ten dollars.
4. Five dollars.
5. Three.
6. All of the nuisances in the town.
7. All of them.
8. Yes.
9. In first-class condition.
10. No.
11. The old fashioned way but can be easily kept clean.
13. There are none within seventy-five feet.
14. Yes, but only allowed four hogs at the most. The pens are looked after every week.

15. The sanitary condition is first-class. We have not a case of sickness in the corporation.
16. Typhoid fever, one case.

R. R. RIDLEY,
Clerk.

---

1. BLOOMINGBURG.
2. 750.
3. Twenty-seven dollars.
4. Twenty-seven dollars.
5. Four.
6. Twenty-five.
7. Twenty-five.
8. Yes.
9. In good condition.
10. No.
11. Walls and boxes.
12. Yes.
13. Fifty feet.
14. Permitted when in good sanitary condition.
15. Our village is in good sanitary condition, well drained, with good streets, and private property is well looked after.
16. Typhoid fever, seven cases; measles, eight cases.

L. DELLINGER,
Health Officer.

---

1. BOWLING GREEN.
2. 6,000.
3. About three hundred.
4. Ten dollars per month.
5. Summer once a week, winter once a month.
6. About one hundred.
7. All of them.
8. Examined by a committee.
9. All in very good condition.
10. They do.
11. With boxes or buckets on top of ground. No vaults allowed.
12. We do not.
13. As far as possible. According to length of lot.
14. We do not.
15. The sanitary condition of our town is fairly good, but we need a thorough system of sewerage. Our board think it would be a great benefit to our town.
16. Diphtheria and membranous croup, 3 cases, 1 death; scarlet fever, 13 cases; typhoid fever, 26 cases, 5 deaths; measles, 2 cases.

A ORDWAY,
Health Officer.

---

1. BRADFORD.
2. 1,600.
3. Sixty-two dollars.
4. Twenty-five dollars.
5. Twelve.
6. No record.
7. Eight to twelve.
8. Yes.
9. Satisfactory--except small details—which were corrected promptly.
10. No.
12. Yes.
13. Fifty feet.
14. Yes—under conditions as to location.
15. Fair. Will have an inspection next month.
16. Diphtheria and membranous croup, 1 case, 1 death.

A. F. LITTLE,
Health Officer.

---

1. BRADNER.
2. 1,800.
3. Seventy-five dollars.
4. Seventy-five dollars.
5. Three.
6. Twelve.
7. All.
8. Yes.
9. All right.
10. Yes.
11. Water-tight when within fifty feet of a well.
12. Yes.
13. Fifty feet unless water-tight.
14. Yes.
16. Not very good. More interest should be taken by the board. We have no place for a dumping ground. Our village is close run for funds.
16. Diphtheria and membranous croup, 4 cases, 1 death; typhoid fever 4 cases, 1 death.

J. W. WYANT,
Clerk.

---

1. BRINKHAVEN.
2. 500.
3. Nothing.
4. Nothing.
5. One each month.
6. Two.
7. Two.
8. Yes.
9. Ventilation and general sanitary condition good.
10. No.
12. No.
14. In some parts.
15. General sanitary condition good, natural drainage good, general health good.

J. B. CLARK.
Health Officer.

1. BROOKFIELD.
3. Not to exceed five dollars.
4. Up to date the bills have not been settled.
5. Two.
6. Two.
7. One.
8. No.
10. No.
12. No ruling.
14. We have no corporation.
15. Good.
16. Diphtheria and membranous croup one case; scarlet fever, one case.

A. W. MCINTOSH.
Health Officer.

---

1. BRYAN.
2. 3,800.
3. One-hundred twenty-five dollars. Burying dead animals and buying disinfectants.
4. One-hundred and twenty dollars per year.
5. Three.
6. A great many, no record kept.
7. All worthy of consideration.
8. They are thoroughly fumigated each vacation.
9. They are at all times in a healthy condition, well ventilated and properly heated at an uniform temperature. Good water to drink.
10. Do not only by the health officer.
11. Some by brick and stone, some by portable boxes or drawers, and many on the bare earth but all are very well cleaned and removed to quarantine grounds, under all circumstances every receptacle for excrements must be thoroughly disinfected with pulverized clay dry; wood or coal ashes, quick lime, copperas etc.
12. Not allowed near wells.
13. I know of no limit.
14. They are but not to be a nuisance.
15. Our sanitary condition is fair and by close observers pronounced far above ordinary, what our town needs, is ample sewerage, broad cement gutters for surface drainage and paved streets; we are blessed with fine water works and ample supply of water. Electric light, magnificent school buildings and churches, but cursed with saloons.
16. Diphtheria and membranous croup, one case, one death; scarlet fever, seven cases; typhoid fever, three cases; no deaths.

N. VINEYARD,
Health Officer.

---

1. BUTLER.
2. 600.
3. No payment as yet.
4. Fees only.
5. None.
6. Sixty-one.
7. Forty.
8. Yes.
9. Good.
10. Yes.
11. Left to discretion of health officer.
12. Yes, not less than sixty feet.
14. Yes.
15. Condition good at present. No new improvements necessary.
16. Diphtheria and membranous croup, 5 cases, 4 deaths.

DR. J. M. MCLAUGHLIN,
Health Officer.

---

1. BYESVILLE.
2. About 1,200.
3. Eight dollars and forty-five cents.
4. Five dollars and forty-five cents.
5. I can't tell.
6. I don't know.
8. No.
9. The board does not furnish me with books of any kind, so I can keep no records.
10. No.
11. Mostly on top of ground or hole.
12. No.
14. Yes.
15. There is room for improvement, but I cannot get the Board to do anything; they have not met since last November, nor will they meet.

C. T. BARNETT,
Health Officer.

---

1. CADIZ.
2. 2,000.
3. About fifty dollars.
4. Twenty-five dollars.
5. Six or eight.
6. A number of pig-pens. They comprise the most frequent cause of complaint.
7. A few temporarily.
8. Yes.
9. In very fair condition. Save one. A school for colored children kept in the basement of their new church. Ventilation imperfect, and rooms dark, necessitating use of gas light during cloudy days.
10. Not without special attention is called to them.
11. Stone walls cemented. There are but few constructed as our village does not grow rapidly. Improvements that have been made are of the best character, and free from objectionable construction.
12. When consulted.
13. About 50 feet.

14. Yes.
15. While the sanitary condition of our village cannot be considered bad, there is room for improvement. Imperfect sewerage, pig-pens and a tannery in our own incorporate limits are open to objection.
16. Diphtheria and membranous croup, 1 case, 1 death; typhoid fever, 1 case, 1 death.

M. J. LYONS, MD.,
Health Officer.

---

1. CALDWELL.
2. 1,400.
3. One hundred and fifty dollars.
4. Fifty dollars.
5. Seven.
6. From ten to twelve.
7. All.
8. Yes.
9. Nothing to brag of.
10. Yes.
11. We don't allow vaults in the town. Contents drop on ground and scavenger cleans every thirty days in months of April, May, June, July, August, September and October, then two or three times during winter. We have ground one mile from town where all the garbage is hauled and no one but the scavenger can clean privies or any such work as we require to be placed in the field for garbage.
12. We don't allow vaults.
14. Five years ago we, (I being a member of the council,) passed an ordinance not allowing hogs in the corporation. But in April 1896, I left the council and the first thing they did was to repeal the hog ordinance, allowing hogs to be kept.
15. Our town is in a good shape except the keeping of hogs, which was a great bother to many last summer.
16. Scarlet fever, cases 3; measles, 40; whooping cough, 11.

O. O. MCKEE, M. D.,
Health Officer.

---

1. CALEDONIA.
2. 900.
3. Twenty-five dollars.
4. Twenty-five dollars.
5. Five.
6. Two.
7. Two.
8. Only by the board of education.
9. Good.
10. Yes.
11. With a dry earth closet or drawers.
12. No.
14. Yes; but are required to be kept clean.
15. Good.
16. Diphtheria, four cases, one death; typhoid fever, one case.

J. W. PATTEN,
Health Officer.

---

1. CANAL FULTON.
2. 1,500.
3. Twenty-four dollars.
4. Twenty dollars.
5. Six.
6. None.
8. They were.
9. In good condition.
10. Yes.
11. Walled up with plank.
12. They do.
13. Sixty feet.
14. Yes.
15. The sanitary condition of our town is good. We know of no change that would improve it.
16. Diphtheria and membranous croup, one case

GEORGE BECKER,
Health Officer.

---

1. CANAL WINCHESTER.
2. 800.
3. Seventy-five dollars.
4. Thirty-dollars.
5. Twelve.
6. Fourteen.
7. Fourteen.
8. Yes.
9. In good condition.
10. Yes.
11. Tight fitting board lining.
12. Yes.
13. Not less than fifty feet.
14. Yes.
15. Present condition good.

Dr. W. S. GAYMAN,
Health Officer.

---

1. CANFIELD.
2. 675.
3. One dollar and eighty cents.
4. Seventy five cents.
5. Two.
6. None to investigate.
7. None.
8. If so, no report to me.
10. No.
11. With pits and boxes.
12. No.
14. Yes.
15. Good, do not know that any improvment can be made.
16. Scarlet fever, 1 case.

A. D. WOOD,
Health Officer.

1. CANNELVILLE.
2. 200.
5. About six.
6. Privy vaults and hog pens.
8. Yes.
9. Good.
10. Yes.
11. Stone, brick or plank.
12. Yes.
13. Hundred feet or more.
14. Yes.
15. Sanitary condition is pretty good as our village is scattered and pig pens are kept from vicinity of wells.
16. Diphtheria and membranous croup, 1 case, 1 death; typhoid fever, 2 cases.

DR. G. B. TROUT,
Health Officer.

---

1. CARDINGTON.
2. 1,700.
3. About one hundred dollars.
4. Thirty-five dollars per year.
5. Five.
6. Twenty-five.
7. All but one.
8. Yes.
9. In good condition.
10. No.
11. Boxes and shallow vaults.
12. No.
14. Yes.
15. In fair condition, with exception of drainage which empties into the river from all parts of town. Large privy vaults empty into the river.
16. Typhoid fever, 10 cases, 2 deaths.

W. H. VAN HORN,
Health Officer.

---

1. CAREY.
2. 1,900.
3. One hundred and ten dollars.
4. Sixty dollars per year.
5. Twelve.
6. Nineteen.
7. Eighteen.
8. Yes.
9. Our school building is in a very good sanitary condition. We recommended some changes which were made and it has made a great improvement.
10. Yes.
11. With a drawer or cemented vaults.
14. Yes, but they must be 150 feet from a residence and kept clean.
15. The sanitary condition of our village is good. We need some sewerage to make it complete in every respect.
16. Typhoid fever, two cases.

DR. I. N. ZEIS,
Health Officer.

1. CARTHAGE.
2. 2,500.
3. One hundred and fifty-six dollars and fifteen cents.
4. One hundred and fifty dollars.
5. Six.
6. Twenty.
7. Twenty.
8. Yes, and thoroughly disinfected every Saturday.
9. In splendid condition.
10. Yes.
11. Privy vaults constructed shall not be less than ten feet deep with walls of stone or brick eight inches or more in thickness. "Cess pools"; "same rule."
12. Yes.
13. Our section reads "as far as possible."
14. Yes, but they must be at a distance of two hundred feet from any dwelling.
15. We need a sewerage system very much as but very few of the streets are properly graded which causes the water to lie and evaporate.
16. Diphtheria and membranous croup, cases, 13, deaths, 5; scarlet fever, cases, 9; deaths, none; typhoid fever, 4 cases; 2 deaths; measles, 20 cases; deaths, none; whooping cough, 7 cases, deaths, none.

HARRY ROSS,
Health Officer.

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1. CATAWBA.
2. 275.
5. Two.
6. Three.
7. Three.
8. No.
10. No.
12. Yes.
13. Fifty feet.
14. Yes.
15. In good condition.
16. Diphtheria and membranous croup, 7 cases, 1 death.

DR. T. D. BEACH,
Health Officer.

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1. CEDARVILLE.
2. 1800.
3. One hundred and twenty dollars.
4. Seventy-five dollars.
5. Fourteen.
6. Five.
7. Five.
8. Yes.
9. Good. A 1.
10. Yes.
11. By tight box.
12. Yes.
13. Fifty feet.
14. Yes, but pen must be at least eight inches above ground and space beneath kept thoroughly clean from all filth.

15. Good. No changes that I know of.
16. Typhoid fever, 2 cases; two deaths.

S. D. KILDOW,
Health Officer.

---

1. CELINA.
2. 3,600.
3. Ninety-eight dollars.
4. Fifty dollars.
5. Five.
6. Sixty-three.
7. Sixty-three.
8. Yes.
9. In a very satisfactory condition from a sanitary standpoint.
10. Yes.
11. Brick vault cemented, bottom 3 inches of first class cement foundation, upon which must be built of hard brick or stone.
12. The distance is limited by the board.
13. Thirty feet.
14. Yes, but must be kept clean.
15. Present sanitary condition good. The board are constantly on the lookout for anything prejudicial to the general health. I can think of no improvements deemed necessary at this time.
16. Diphtheria and membranous croup, 6 cases; scarlet fever, 9 cases; measles, 3 cases; whooping cough, 14 cases.

DR. L. P. LISLE,
Health Officer.

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1. CENTERBURG.
2. 800.
3. Do not know, would require council report.
4. Twenty-five dollars salary, with extra fees.
5. Six.
6. Don't know.
7. Four.
8. Yes.
9. Buildings well ventilated, heating apparatus, etc., good, grounds clean, dry and high, water supply good.
10. Yes.
11. State law observed, disinfected, either dry earth or lime used, and no accumulations allowed unless above is observed.
12. Yes.
13. State law observed.
14. No.
15. We think our village is one of the cleanest in the state, and without water and sewerage, do not know where we could change to make much improvement.
16. Typhoid fever, 2 cases.

A. T. BORDEN,
Health Officer.

1. CHAGRIN FALLS.
2. 2,000.
3. Twenty-six dollars and sixty cents.
4. Eighteen dollars and sixty cents.
5. Five.
6. Twenty-three.
7. Twenty-three.
8. Yes.
9. Good.
10. Yes.
11. Dry earth plan.
12. Yes.
13. Fifty feet.
14. No.
15. Present sanitary condition good. Expect in the near future to have a system of water works. Pure spring water.
16. Diphtheria and membranous croup, 11 cases, 1 death; typhoid fever, 5 cases.

DR. W. H. WALTERS,
Health Officer.

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1. CLIFTON.
2. 300.
3. Nothing.
4. Nothing.
5. Four.
6. Four.
7. Four.
8. Yes.
9. Fair condition.
10. No.
11. Vaults three to ten feet deep.
12. Yes.
13. One hundred feet.
14. Yes.
15. Very good.

DR. D. E. SPAHR,
Health Officer.

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1. CLARINGTON.
2. 1,000.
3. Nothing but salaries of health officer and clerk.
4. Twenty dollars per annum, payable quarterly.
5. Aim to meet monthly.
6. The entire corporation.
7. Six
8. Yes.
9. In good condition except privy vaults, which were replaced by new ones, old ones disinfected and thoroughly filled and covered.
10. Yes.
11. Vaults; regularly disinfected and when near full "night soil" removed at night and buried.
12. Yes.
13. Varies according to lay of ground and surroundings.
14. Yes; required to be kept in good sanitary condition and regularly inspected.

15. Good; No suggestions as to changes or improvements; think sanitary condition as good as can be made.
16. Diphtheria and membranous croup, 11 cases; scarlet fever, 19 cases; typhoid fever, 2 cases; measles, 53 cases; whooping cough, 29 cases.

DR. JOHN E. MORRILL,
Health Officer.

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1. CLYDE.
2. 3,000.
3. About one hundred dollars.
4. Eighty-four dollars.
5. A number of special calls—can't say.
6. About 100.
7. About 50.
8. Yes.
9. Good. One of the pupils was taken sick with scarlet fever; as a precaution all rooms were fumigated.
10. Yes, as regards the distance from source of water supply.
11. Great many dry vaults, which I believe to be the best; same connected with sewers; few water-tight; others simply a hole dug. Many are adopting the dry closet.
12. Yes.
13. Fifty feet, except it be water tight.
14. Are prohibited between 30th day of June and 1st day of October in each year.
15. The sanitary condition good; except the Buckeye street sewer from M. E. church west, distance of about thirty rods, has not got enough fall. I think it ought to be relaid.
16. Scarlet fever, 12 cases; typhoid fever, 20 cases, 4 deaths; measles, 2 cases.

F. G. TUTTLE,
Health Officer.

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1. COLLINWOOD.
2. 3,000.
3. General expenses, $207.73; night-soil disposal, $997.91.
4. One hundred dollars.
5. Nine.
6. There were 57 notices served, but a number of notices were served upon the same nuisance.
8. Yes.
9. Good.
10. Yes.
11. Water-tight boxes and brick cemented vaults.
12. Yes.
13. Forty feet.
14. No, except in isolated places.
15. The present sanitary condition of the village is good. We seek to improve it by having a system of water drainage constructed.
16. Diphtheria and membranous croup, 1 case, 1 death; scarlet fever, 2 cases, typhoid fever, 11 cases; 4 deaths.

DR. ALVAN L. WALTZ,
Health Officer.

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1. COMMERCIAL POINT.
2. 500.
3. Twenty-six dollars.
4. Twenty-four dollars.
5. Six.
6. Three.
7. Three.
8. Yes.
9. The building is a new one just built within a year and a half. It is in good sanitary condition.
10. No.
11. Holes from three to four feet dug in the ground and the privy built over it.
12. No.
14. Yes.
15. Our present sanitary condition is as good as might be expected under the circumstances.
16. Diphtheria and membranous croup, 7 cases, 2 deaths; scarlet fever, 3 cases; typhoid fever, 32 cases, 2 deaths.

W. A. SMITH,
Health Officer.

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1. CONNEAUT.
2. 5,000.
3. Six hundred and fifty-one dollars and twenty cents.
4. Two hundred and forty-three dollars and thirty cents including expenses to meeting of local boards at Columbus, Ohio.
5. One or more meetings were held each month.
6. Do not know exact number, but all orders of the board were carried out with little difficulty.
7. All reported to board.
8. No attention has been paid to school houses by Board of Health.
10. It does, there are very few vaults in the village.
11. Sec. 2, under head of Nuisances, of village code, reads "No privy vault shall be constructed within the corporation unless by special permission of the Board, and a special permit is granted for that purpose.
12. It does not.
14. Yes. Village has an ordinance prohibiting same. But no attention is given the matter at present for the being to re

15. The sanitary condition of Conneaut is better than it has been for a number of years. A house to house inspection was carried on, during the last six months of '96, and a great deal of cleaning up resulted.

16. Diphtheria and membranous croup, 1 case; scarlet fever, 82 cases, 4 deaths; typhoid fever, 27 cases, 2 deaths; measles, 6 cases; whooping cough, 24 cases, 3 deaths.

DR. D. S. COSSITT,
Health Officer.

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1. CONVOY.
2. 800.
3. Three dollars.
4. Nothing.
5. One.
6. None.
8. Yes.
9. Good.
10. Yes.
11. Vaults in the ground. Made from lumber, usually a few brick ones.
12. No.
14. Yes.
15. Good. Here all privy vaults cesspools, garbage piles, manure piles, removed and disinfected twice a year.
16. Diphtheria and membranous croup, 2 cases; typhoid fever, 5 cases, 1 death; whooping cough, 15 cases.

DR. R. L. CROOKS,
Health Officer.

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1. COSHOCTON.
2. 5,000.
3. Ten dollars and forty-five cents for disinfectants. Township trustees have assisted (through the health officer) some of the sick poor while quarantined.
4. Thirty dollars per month. All sanitary duties are performed by the health officer.
5. Eight.
6. One hundred and forty nine.
7. One hundred and forty-five.
8. No.
10. It does.
11. Privy vaults are made at least eight feet deep and walled up with brick or stone and cemented inside.
12. Yes.
13. No less than forty feet.
14. During winter months only. (From Nov. 1st. to April 1st.)
15. The sanitary condition of our village is fair. We need more sewerage. A proper method of disposing of garbage and night-soil. A more complete extension of water mains, thus doing away with wells.
16. Diphtheria and membranous croup, 6 cases, 3 deaths; scarlet fever, 4 cases; typhoid fever, 8 cases, 1 death; measles, 1 case.

J. E. FOSTER V. S.,
Health Officer.

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1. COVINGTON.
2. 1,800.
3. Twenty-four dollars and forty-six cents.
4. Fifty dollars.
5. Three.
6. Thirty-seven.
7. Thirty-seven.
8. We have a new house with modern appliances.
11. Sec. 14. No privy vault, cesspool or reservoir into which a privy, water-closet, stable or sink, is drained, except it be water-tight, shall be established or permitted within fifty (50) feet of any well, spring or other source of water supply used for drinking or culinary purposes.

Sec. 15. All privy vaults hereafter constructed shall be of stone or hard brick, with walls and bottom not less than eight (8) inches thick, laid with full joint of cement mortar, and be cement plastered inside, so as to be perfectly water-tight.

Sec. 16. All privy vaults, cesspools and reservoirs for the accumulation of fecal and filthy matter, shall be emptied at such times as the board of health may direct.

Sec. 17. The cleaning of privy vaults and the removal of night soil, swill, garbage and other filthy matter, shall be done only at such time and in such manner as the board of health may specify; and such substances shall not be deposited within the corporate limits.

12. Yes.
13. Sec. 14.
14. Yes.
15. The sanitary condition is good, but could be made much better by the abandonment of all old privy vaults and new ones constructed according to the regulations of the board of health.
16. Diphtheria and membranous croup, 1 case; typhoid fever, 2 cases; whooping cough, 11 cases.

GEORGE FLAMMER,
Health Officer.

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1. CUMBERLAND.
2. 600.
3. Nothing.
4. Nothing.
5. Two.
6. One.

7. One.
8. No.
10. Yes.
11. Walled and cemented.
12. Yes.
13. Fifty feet.
14. Yes.
15. Condition is fair. We have no improvement we deem necessary at this time.
16. Scarlet fever, 1 case; whooping cough, 1 case.

G. E. McENDREE.
Health Officer.

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1. CUSTAR.
2. 350.
3. Ten dollars.
4. Ten dollars.
5. Six.
6. Four.
7. Four.
8. No sir. Just being built.
10. No.
11. With box, so they can he hauled out, and buried.
14. Yes.
15. Very good, with the exception of elevators, allowing dust from corn to gather until there are wagon boxes of it there, which causes a bad smell.
16. Diphtheria and membranous croup, 12 cases, 2 deaths; scarlet fever, 6 cases; typhoid fever, 7 cases, 1 death; measles, 8 cases; whooping cough, 10 cases.

DR. J. F. NOBLE,
Health Officer.

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1. CUYAHOGA FALLS.
2. 3,500.
3. Nothing.
4. Twenty-five dollars.
5. Only a few.
6. Twelve.
7. Twelve.
8. No.
10. Yes.
11. Of hard brick. Walls and bottom laid 8 inches thick in cement mortar.
12. Yes.
13. Not less than fifty feet.
14. Yes.
15. The sanitary condition is good. The improvement necessary is a sewer system.
16. Typhoid fever, 1 case, 1 death.

I. N. REID,
Health Officer.

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1. DANVILLE.
2. 500.
3. Nothing.
4. Nothing.
5. Two.
6. Eight or ten.
7. All.
8. Yes.
9 Good.
10 No.
11. Usually a pit six or eight feet deep is dug and boxed with boards.
12. Yes.
13. One hundred feet.
14. Yes.
15. We think good.

DR. C. R. BRADFIELD,
Health Officer.

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1. DEGRAFF.
2. 1,200.
3. Seventeen dollars and ten cents.
4. Fifty dollars per annum.
5. Twelve regular.
6. Thirty.
7. Most of these.
8. Yes.
9. The building is comparatively new, eight large rooms beside offices and halls are kept clean and well ventilated. Difficult to regulate the light in two of the rooms.
10. They tried to, but failed.
11. Open pits (not water-tight,) except in a few cases. A cemented vault with the necessary out building over this open pit. In most cases the subsoil drainage is so complete that these need cleaning rarely and thus it seems as though shallow wells must be polluted
12. Yes, but has not been rigidly enforced.
13. Fifty feet.
14. Yes, so long as the hog and his keeper are careful.
15. It is fair with exception of condition of privy vaults. We need measures adopted by the board or council to regulate the construction of privy vaults, keeping of pigs. There is need of knowledge of the laws of quarantine during epidemics.
16. Scarlet fever, 13 cases, 1 death; typhoid fever, 8 cases, 1 death.

DR. LORAN D. CRAIG, M. D.
Health Officer.

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1. DENNSION.
2. 3,000.
4. Fifty dollars.
5. Eight.
6. One hundred, sixty-seven.
7. Over one hundred.
8. No.
10. Yes.
11. Water-tight, brick laid in cement.
12. Regulated by ordinance of council.
13. Twenty-five feet, I believe.
14

15. The town is in a fairly good sanitary condition except for want of sewerage in some parts and some bad privy vaults.
16. Diphtheria and membranous croup, 14 cases, 2 deaths; scarlet fever, 28 cases, 3 deaths.

DR. L. H. HUGHES,
Health Officer.

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1. DOYLESTOWN.
2. 1,200.
3. Forty dollars.
4. Thirty-five dollars.
5. Six.
6. Ten.
7. All that were reported.
8. No.
10. Yes.
11. Brick or drawers so that they may be easily cleaned. That is, all new ones.
12. Yes.
13. Fifty feet.
14. Yes.
15. Very good. The village is situated upon a hill and the drainage is in every direction away from the central part of the town. Water works and better sewers would be of benefit.
16. Diphtheria and membranous croup, 2 cases, 1 death; measles, 20 cases.

DR. A. E. STEPFIELD,
Health Officer.

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1. DRESDEN.
2. 1,700.
3. Seventy-five dollars.
4. Sixty dollars.
5. Seven regular meetings.
6. Forty-three.
7. All of them.
8. Yes.
9. The very best.
10. No.
11. Principally of brick, limestone or two inch plank.
12. No.
14. Yes.
15. The present sanitary condition of our town is very good, and great care is being observed by our Board to keep it so.
16. Diphtheria and membranous croup, 4 cases; scarlet fever, 3 cases; typhoid fever, 2 cases.

GEORGE SPARKS,
Health Officer.

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1. DUPONT.
2. 500.
3. Five dollars.
4. Nothing.
5. Two.
6. Nothing but weed mowing.
8. Yes.
9. Good.
10. Yes.
11. Two inch plank.
12. Yes.
13. Fifty feet.
14. Yes.
15. The sanitary condition is good, the village is scattering and water good.
16. Diphtheria and membranous croup, 4 cases, 2 deaths; scarlet fever, 1 case.

ISAAC STALEY,
Health Officer.

---

1. EAST PALESTINE.
2. 2,200.
3. Forty-five dollars and eighty cents.
4. Thirty dollars.
5. Two.
6. Five.
7. All of them.
8. Yes.
9. In good sanitary condition.
10. No.
12. Yes.
13. Fifty feet.
14. Yes.
15. Our present sanitary condition is very good. A good system of sewerage would greatly improve the sanitary condition of our village.
16. Diphtheria and membranous croup, 8 cases, 4 deaths; scarlet fever, 9 cases; typhoid fever, 8 cases, 2 deaths; Measles, 2 cases.

W. H. OLLOMAN,
Health Officer.

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1. EL DORADO.
2. 500.
3. Twenty-five dollars.
4. Nothing.
5. Eight.
6. Privies were all.
8. Yes.
9. In good condition.
10. Yes.
11. Made of brick or stone not less than eight inches thick cemented inside and out. We use tight boxes in privies instead of vaults, and have them emptied often. Only one vault in the village and that constructed according to recommendation of the State Board of Health.
12. No.
14. Yes.
15. The sanitary condition is good. The only sanitary measure that gives us any trouble is the privies.

DR. J. A. DAVISSON,
Health Officer.

1. ELIDA.
2. 350.
3. Nothing.
4. Nothing.
5. Four.
6. Three.
7. Three.
8. They were.
9. Were found in good condition.
10. Not as a general rule.
11. By vaults from three to four feet deep, so arranged as to allow being cleaned yearly.
12. They are all about ten to twenty feet.
14. They are prohibited.
15. The present sanitary condition of our village is satisfactory to all our people at present. We see or think of nothing to make improvements on.
15. Diphtheria and membranous croup, cases 1, deaths 1; typhoid fever, cases 3, deaths 1; whooping cough, cases 6.

A. J. MYERS,
Health Officer.

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1. ELMWOOD PLACE.
2. 3,000.
3. Twelve hundred and twenty-six dollars and seventy cents.
4. Ninety-six dollars.
5. Eleven.
6. Fifteen.
7. Fifteen.
8. Not by order of Board of Health.
9. Superintendent of public school reports all rooms in fine sanitary condition; also fumigated all rooms during school term.
10. Yes.
11. All privy vaults hereafter constructed shall be of stone or hard brick, with walls and bottom not less than eight (8) inches thick, laid with full joint of cement mortar, and be cement plastered inside, so as to be perfectly water-tight.
12. No privy vault, cess pool nor reservoir into which a privy, water closet, stable or sink is drained, except it be water-tight, sl all be established within fifty (50) feet of any well, spring or other source of water supply used for drinking or culinary purposes.
14. Yes.
15. Sanitary condition very good. We need a better supply of water than that now obtained from wells.
16. Diphtheria and membranous croup, cases 7, deaths 4; typhoid fever, cases 2, deaths 1. Measles, cases 3.

JOHN H. BART,
Health Officer.

1. FAIRPORT.
2. 1,574.
4. Ninety dollars.
5. Two.
6. Thirty-one.
7. Thirty-one.
8. Yes.
9. In good condition, only crowded for room.
10. No.
11. In every way.
12. Yes.
13. Fifty feet.
14. Yes.
15. Sewerage, or have all privies with a box and on top of ground.
16. Typhoid fever, cases 26, deaths 1.

A. J. MCCUE,
Health Officer.

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1. FAIRVIEW.
2. 395.
3. None.
4. None.
5. Six.
6. Exact number not known.
7. All reported.
8. Yes.
9. Good.
10. Yes.
11. To be not less than four feet deep.
12. Yes.
13. One hundred and twenty-five to one hundred and fifty feet.
14. Yes.
15. Good.
16. Diphtheria and membranous croup, cases 3, deaths 1; typhoid fever, cases 1.

W. N. BROWN,
Health Officer.

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1. FELICITY.
2. 800.
3. Fifty dollars.
4. Twenty-five dollars.
5. Eleven.
6. Thirty.
7. All of them.
8. Yes.
9. Good; yes. Built with air chambers and good ventilation.
10. No; we have only six in town and they will be filled up.
11. With pits four feet deep. All others are on top of ground and cleaned and buried two to four times a year.
12. No.
14. Yes; they are kept thoroughly cleaned and kept well sprinkled with lime, and offal buried
15. The present sanitary condition of our village is excel[illegible] kept clean and [illegible] away.

1. FRANKLIN.
2. 3,000.
3. About four hundred dollars.
4. One hundred dollars.
5. Ten.
6. No record kept. A general inspection made each month.
7. Eighty-five by order of health officer. A great many by request of sanitary police.
8. Yes.
9. South and west buildings in good condition. Center building fair.
10. Yes.
11. Walled with brick or stone. Must be ten feet deep.
12. Yes.
13. Not less than thirty feet.
14. Yes; but must be kept in good condition.
15. The sanitary condition of our village is good and should continue so with the same precaution as in the past.
16. Diphtheria and membranous croup, cases, 35; deaths, 16 scarlet fever, cases, 7; deaths, 1; typhoid fever, cases, 1; deaths, 1.

DR. N. A. HAMILTON,
Health Officer.

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1. FRAZEYSBURG.
2. 700.
3. Nothing.
4. Nothing.
5. Three.
6. Two.
7. Two.
8. No.
10. No. The town council regulates privy vaults.
11. The ordinance requires brick or stone vaults made water tight and not nearer than fifty feet to a well.
14. Yes.
15. The sanitary condition of our village is fairly good; a good many cases of lagrippe and pneumonia, but not caused by the want of proper sanitary regulations.
16. Typhoid fever, cases, one; whooping cough, 40.

SAMUEL MCGINNIS,
Health Officer.

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1. FREEPORT.
2. 800.
3. Thirty-five dollars and eighty-five cents.
4. Fifteen dollars.
5. Six.
6. Twelve.
7. All.
11. We have an ordinance that no privy shall be placed over a vault or excavation.
12. Yes.
13. 100 ft.
14. Yes.
15. Fairly good.
16. Whooping cough, 40 cases.

DR. W. A. ZELLARS,
Health Officer.

---

1. GENEVA.
2. 3,000.
3. Twenty dollars.
4. Eighteen dollars and seventy-five cents.
5. One.
6. Two.
7. Two.
8. No.
10. No.
11. In all manner.
12. Yes.
13. 50 ft.
16. Diphtheria and membranous croup, 2 cases; scarlet fever, 3 cases; measles, 12 cases.

M. W. HOLMDEN,
Health Officer.

---

1. GEORGETOWN.
2. 1,800.
3. One hundred dollars and fifty cents.
4. Fifty-three dollars and fifty cents.
5. Eight.
6. One
7. One.
8. Yes.
9. Good.
10. Yes.
11. With box.
12. No.
14. No.
15. Good.
16. Diphtheria and membranous croup, 1 case, 1 death; measles, 1 case.

R. B. FEE,
Health Officer.

---

1. GERMAN TOWN.
2. 1,800.
3. Two hundred and fifty dollars.
4. Seventy-five dollars.
5. Four.
6. Fifteen.
7. Fifteen.
8. They were.
9. In clean and healthy condition.
10. Yes.
11. Some cement and some brick.
12. Yes.
13. About sixty feet.

9. The school house was in good condition but privies were in bad condidition. We had them cleaned.
10. Yes.
11. Usually by a box, which is emptied out of corporation when in need of cleaning.
12. Yes.
13. Fifty feet.
14. Yes; by keeping clean.
15. I would consider the sanitary condition fair, but I think it necessary for more ditching. We have had several under drains put in.
16. Diphtheria and membranous croup, cases 11, deaths 2.

G. H. HAYS,
Health Officer.

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1. HANGING ROCK.
2. 550.
3. Two hundred and fifty dollars.
4. Eighteen dollars.
5. Thirteen.
6. Sixteen.
7. Eleven.
8. No.
10. No.
12. No.
14. Yes.
15. The general sanitary condition of our village is good at present.
16. Diphtheria and membranous croup, cases 7, deaths 1; typhoid fever, cases 10; deaths 3.

JOSEPH KINKAID,
Health Officer.

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1. HARROD.
2. 500.
5. Two.
6. One.
7. One.
8. No.
10. No.
12. No.
14. Yes.
15. Good; better sewerage.
16. Diphtheria and membranous croup, cases, 3, deaths, 2; typhoid fever, 8 cases.

M. L. JOHNSTON,
Health Officer.

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1. HARTWELL.
2. 2,500.
3. About seventeen dollars and five cents.
4. One hundred dollars.
8. Yes.
9. Good.
10. Yes.
11. Stone or brick and must be water tight.
12. Yes.
13. Fifty feet.
14. No.
15. Sanitary condition good. We are in need of a trunk sewer.
16. Diphtheria and membranous croup, cases, 3.

DR. LINCOLN PHILLIPS,
Health Officer.

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1. HAYESVILLE.
2. 450.
3. Thirty dollars.
4. Twenty dollars.
5. Four meetings.
6. Twelve.
7. All were abated.
8. They were.
9. Found in good condition.
10. They do not.
11. Built with drawers.
12. They do not.
14. They are.
15. The condition of the village is good, and can't see where there could be improvement.
16. Typhoid fever, 9 cases; 1 death.

DILLMAN ANDRESS,
Health Officer.

---

1. HEBRON.
2. 450.
3. About ten dollars.
4. Six dollars.
5. Four. We meet only when necessary.
6. Eighteen.
7. Fifteen.
8. They were last year but not this.
9. Good, except ventilation, which was attended to.
10. No.
11. In any manner the owner sees fit.
12. No.
14. Yes.
15. On account of low location we have poor drainage especially for cellars. It would require a very expensive sewer system: the only remedy.
16. Diphtheria and membranous croup, 1 case, 1 death; scarlet fever, 4 cases; typhoid fever, 2 cases.

DR. R. M. BONAR,
Health Officer.

---

1. HILLIARDS.
2. 400.
3. Two dollars and fifteen
4. Two dollars and fifteen
5. Three.

1. JERUSALEM.
2. 200.
3. Forty-eight dollars and ninety-nine cents.
5. Five.
6. None.
8. No.
10. No.
12. Yes.
13. Fifty feet.
14. Yes.
15. Reasonably good.
16. Scarlet fever, 2 cases; measles, 1 case; whooping cough, 2 cases.

J. A. LATHAM,
Health Officer.

---

1. JOHNSTOWN.
2. 650.
3. Fifty cents express.
4. Nothing.
5. Six reorganized in June, 1896.
6. Six.
7. Five.
8. Yes.
9. Very good.
10. We have rules regulating them.
11. No new ones have been constructed since board reorganized. Old ones are of promiscuous patterns of construction.
12. Yes.
13. Thirty feet.
14. There are some here.
15. Our town is on an elevation with good drainage and sewerage, but the gutters of the streets are not paved at all, causing a collection of water and mud.
16. Diphtheria and membranous croup, 1 case; typhoid fever, 2 cases, 1 death.

C. A. BURKE, M. D.,
Health Officer.

---

1. JUNCTION CITY.
2. 700.
3. About seventy-five dollars.
4. Thirty dollars.
5. Ten.
6. Eight.
7. Eight.
8. Yes.
9. The school building stands on high ground with no buildings near it, privies below it. Janitor under strict instructions. Condition good.
10. Yes.
11. Some cemented and some with drawer box. Lime and dry earth are used until the box is full then remov at night by scavenger.
12. Yes.
13. Fifty feet.
14. Yes; under rigid re
15. We required villa
move all garbage once
alleys and streets and keep same clean last summer. Our town is in good sanitary condition now and has been during the past year. No improvements deemed necessary now.
16. Diphtheria and membranous croup, 4 cases, 1 death; scarlet fever, 24 cases; typhoid fever, 12 cases; whooping cough, 3 cases.

DR. J. A. MOODY,
Health Officer.

---

1. KELLEY'S ISLAND.
2. 1,100.
3. Seventeen dollars.
4. Nothing.
5. Eight.
6. One.
7. One
8. Not yet.
9. Reported satisfactory.
10. Yes.
11. Dug in clay subsoil and drained into ditches and the lake.
12. No wells here.
14. Yes.
15. The sanitary condition has been very good during the last year. This board of health has been in existence since May, 1896.
16. Diphtheria and membranous croup, 1 case.

DR. J. J. KLEIN,
Health Officer.

---

1. KENT.
2. 4,000.
3. Nothing except for stationery and printing.
4. One hundred dollars per year and $50 for milk and meat inspection.
5. Not over seven or eight.
6. Cannot tell. I inspect the entire town in spring and find a good many privies, etc., but the people here promptly respect the requests and orders of the health officer.
7. It has not been necessary for the board to abate any nuisances, if that is what is meant.
8. Not the past year, but was the year before and found in good sanitary condition, so far as we were able to discover.
10. They pretend to, but a former health officer had a misconception of what constitutes a dry earth closet and supposed it meant that privies should be so constructed that the contents should on the earth below instead of into drawer, and many were thus con- ained to so remain.

mission of the

dy soil and

16. Typhoid fever, 2 cases, 2 deaths; whooping cough, 1 case; 1 death.

DAVID EELLS,
Health Officer.

---

1. LOCKLAND.
2. 3,000.
3. Cannot state as we have no sanitary fund.
4. One hundred dollars.
5. We meet once a month.
6. Thirteen.
7. Thirteen.
8. They were.
9. In good condition.
10. We do.
11. Vaults are built of stone, wooden casings, seven to nine feet deep.
12. No distance given.
13. They are usually built in back yards.
14. No.
15. The general sanitary condition of our village is good with the exception of a few cases of typhoid fever, scarlet fever and whooping cough
16. Diphtheria and membranous croup, deaths 3; typhoid fever, deaths 2; whooping cough, deaths, 1.

M. GUTH,
Health Officer.

---

1. LOGAN.
2. 3,500.
3. Two dollars and seventy five cents.
4. One hundred dollars.
5. Twelve.
6. Eighty-five.
7. Eighty-five
8. Yes.
9. Good.
10. No
11. Depths to 10 ft., walled and no floor.
12. Yes.
13. 50 ft.
14. At certain parts.
15. Sanitary condition good; canal nuisance abated and sanitary sewerage completed over town and water works.
16. Diphtheria and membranous croup, cases 2, deaths 1; scarlet fever, cases, 22, deaths 1.

A. K. SMITH,
Health Officer.

---

1. LOUDONVILLE.
2. 1,500.
3. Seventy-five dollars.
4. Fifty dollars.
5. Twelve meetings, eight with quorum.
6. Many.
7. All.
8. Yes.
9. Good.
10. It does not. Has no plan.
11. They are simply pits in the ground, which is here drift gravel generally loosely planked to keep from caving in. There is nothing to prevent contamination of wells, they being the sole water supply Wells vary in depth from twenty feet to eighty feet. But entire depth in gravel, sand, etc.
12. It does not. They are all distances, many very close, but few from sixty to one-hundred feet.
14. Yes, under restrictions. Must be kept clean. When offensive are removed.
15. Nuisances are promptly abated. The privy vault is the problem.
16. Scarlet fever, 1 case; typhoid fever, 3 cases, 1 death.

WM. CONRAD,
Health Officer.

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1. LOVELAND.
2. 2,000.
3. Twenty-five dollars.
4. Nothing.
5. Old board disbanded and four meetings held by present board.
6. Ten.
7. Six.
9. No.
10. Yes.
11. Built of rough wall, brick and stone, ten feet below the crown surface of nearest street.
12. No.
14. Yes, if kept in a sanitary condition which they are not.
15. The present sanitary condition is bad, subject to surface drainage, principal part of which is in river bottom. We should have a sewer system.
16. Typhoid fever, 4 cases; whooping cough, 30.

J. D WAKEFIELD,
Health Officer.

---

1. LOWELL.
2. About 400.
3. No.
9. They are said to be good.
10. It does not.
11. As they please.
12. No.

lation of loca-

tion of privies, a curfew ordinance and abatement of saloons.
16. Typhoid fever, 2 cases, 1 death; Measles, 40 cases.

J. W. BRABHAM,
Mayor.

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1. LYNCHBURG.
2. 950.
3. There was nothing expended only for health office and clerk.
4. Thirty-two dollars per year.
5. About five or six.
6. One—that was the distillery.
7. The Board did appoint a committee that avers all.
8. It was at different times.
9. It was found in good condition. Don't think it could be better.
10. They do.
11. With a box under in place of vault. There are some old vaults yet but think they will be filled up
12. They do.
13. Not less than thirty feet.
14. They are if kept clean.
15. The village is in good sanitary condition. I think if the Board was an independent body and had the sanitary funds under its control it would be better.
16. Diphtheria and membranous croup, cases 3; typhoid fever, cases 3; whooping cough, cases 12.

MARTIN V. NOLDER,
Health Officer.

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1. MCARTHUR.
2. 1,000.
4. None as yet. Council of town refused payment.
5. Seven.
6. Several.
7. All.
8. Yes.
9. In good condition generally. Heating and ventilation are in as good condition as present facilities will permit.
10. No.
11. Just simply drop on the ground; some boxes and very few vaults.
12. No.
14. Yes.
15. Fairly good.
16. Diphtheria and membranous croup, cases 2; scarlet fever, cases 2; typhoid fever, cases 7; measles, cases 1; whooping cough, cases 30, deaths 1.

DAVID LANTZ,
Health Officer.

1. MCCLURE.
2. 600.
3. Twelve dollars and fifty cents.
4. Three dollars.
5. Five.
6. Nine.
7. Nine.
8. No.
10. No.
12. No.
14. Yes, when properly kept.
15. The present sanitary condition is good, but may be improved by a better system of drainage, and proper disposition of garbage.
16. Scarlet fever, cases 10; typhoid fever, cases 2; whooping cough, cases 3.

DR. W. J. WEAVER,
Health Officer.

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1. MCCOMB.
2. 1,400.
3. Probably seventy-five dollars including salary of health officer and rent of dumping ground.
4. $40.00.
5. About eight more since August.
6. Four or five exclusive of privies.
7. One-hundred and twelve including vaults.
8. No.
9. Building is kept in good general condition—janitor is also our sanitary policeman.
10. Theoretically, yes—practically, no.
11. In all ways but the right one majority consist of a small building and a hole in the ground.
12. Yes.
13. 50 feet.
14. Yes.
15. A fair average. Greatest need is some system of garbage disposal that will be general and effective.
16. Scarlet fever, 2 cases; typhoid fever, 2 cases.

DR. JNO. A. THOMPSON,
Health Officer.

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1. MCCONNELLSVILLE.
2. 1,800.
3. Seventy one dollars.
4. Fifty dollars.
5. But few; the health officer has done all the work.
6. Twelve.
7. Twelve.
8. About two years ago, and there has been no change since.
9. Bad. The building is heated by steam pipes and there is no automatic

ventilation. The air is renewed by opening windows and doors. The condition of the rooms depends entirely upon the judgment and vigilance of the teachers. It should be changed to secure automatic ventilation.
10. In part.
11. Sunk to the gravel, and bricked or boarded up.
12. No regulations.
13. Our water supply is from public wells which are at street crossings.
14. No–not any hogs!
15. The present sanitary condition of our village is good. The improvement would be a sewerage system.
16. Scarlet fever, 1 case, 1 death; typhoid fever, 2 cases; measles, 3 cases.

DR. J. D. MARIS,
Health Officer.

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1. MAGNOLIA.
2. About four hundred.
3. Paid to health officer four dollars for serving notices.
5. About one a month.
6. Four.
7. Two.
8. The school house just built new.
10. No.
11. Planks.
12. No.
14. Yes.
15. The sanitary condition of the town has been good the past year.

W. M. JUDD.
Health Officer.

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1. MANCHESTER.
2. 2,500.
3. Twenty-five dollars.
4. One hundred dollars.
5. Four.
6. Probably fifty, kept no account.
7. Majority.
8. Yes.
9. Excellent.
10. No.
12. No.
14. No.
15. Very good. Being without the advantage of complete sewerage and water works. I suppose our sanitary condition would compare favorably with any of its class.
16. Diphtheria and membranous croup, 4 cases, 2 deaths.

DR. R. A. STEPHENSON,
Health Officer.

1. MARYSVILLE.
2. 3,000.
3. Four hundred dollars.
4. Salary allowed one hundred dollars.
5. Thirteen.
6. Thirty-five.
7. Thirty-five.
8. No.
10. Yes.
11. Above ground boxes.
12. Yes.
13. Fifty feet.
14. No.
15. As good as could be expected when we have no proper sewerage system. Construction of sewerage system.
16. Diphtheria and membranous croup, 43 cases, 6 deaths; scarlet fever, 9 cases, 2 deaths; typhoid fever, 18 cases, 2 deaths.

DR. JNO. E. WOOD,
Health Officer.

---

1. MASON.
2. 700.
3. Twenty-two dollars.
4. Clerk ten and health officer twelve dollars.
5. Eight.
6. Thirty.
7. Thirty.
8. Yes.
9. Good.
10. To some extent.
11. Stone or brick.
12. Yes.
13. Sixty feet.
14. Yes few
15. In excellent condition.
16. Diphtheria and membranous croup, 1 case; typhoid fever, 4 cases, 1 death; whooping cough, 2 cases.

DR. C. T. HALL,
Health Officer.

---

1. MAUMEE.
2. 1,700
3. Twenty-seven dollars.
4. Haven't any use; village marshal.
5. Ten meetings.
6. Thirteen.
7. Twelve.
8. Yes.
9. In good condition very even temperature, good ventilation and free of dirt.
10. Not altogether.
11. Plank vaults set in the earth.
12. Yes.
13. Fifty feet.

15. The village is at present in good sanitary condition, and general health rather too good for our doctors.
16. Measles, 2 cases.

D. H. PERRIN,
Health Officer.

---

1. MECHANICSTOWN.
2. 200.
3. Twenty-five dollars (estimated).
4. One dollar and a half per day for days spent.
5. Six.
6. Several.
7. Several.
8. No.
9. The school houses are thoroughly cleaned at the beginning of each school year.
10. Yes.
11. On the surface without vaults. People instructed to cover the soil frequently with dry earth and air slacked lime and to keep clean.
12. No.
14. Yes, this a nuisance we would be glad to be rid of.
15. During Aug. of '96, we had several cases of typhoid fever; a general cleaning of alleys, privies, wells etc., was made under care of township board of health, and it did great good.
16. Typhoid fever, 5 cases, 1 death.

DR. JOHN M. WATT,
Health Officer.

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1. MELROSE.
2. 550.
3. Seven dollars and seventy-five cents.
5. Fourteen meetings the last year.
7. Four.
8. Yes, and found it all right.
10. Yes.
11. By plank vault 4½ feet deep.
12. Yes.
13. Fifty feet.
14. Yes.
15. It is very good condition now, and we expect to keep it so.

THOMAS J. MEYERS,
Health Officer.

---

1. MENTOR.
2. 800.
3. None.
4. Ten dollars.
5. Two.
6. Four.
7. Four.
8. Yes and found all right.
9. Good.
10. No.
11. Wood.
12. No.
14. Yes.
15. We have had a very healthy year, no epidemics, no fevers, only whooping cough, the present winter and those very mild and there not reported to health officers.

LESTER H. LUSE,
Health Officer.

---

1. MIAMISBURG.
2. Between 3,500 and 4,000.
3. One hundred and fifty-two dollars and one cent.
4. One hundred dollars.
5. Seventeen.
6. One hundred and forty-five.
7. One hundred and forty-five.
8. Yes.
9. Fairly good; might be some improvement but they are in fair condition.
10. Only to a degree.
11. Eight foot deep and walled up with stone or brick.
12. Yes.
13. Not less than fifty feet.
14. Yes.
15. The sanitary condition is very good. Alleys should be graded and bouldered and some new sewerage.
16. Diphtheria and membranous croup, 3 cases, 1 death; typhoid fever, 3 cases, 2 deaths.

Dr. H. SCHOENFIELD, SR.,
Health Officer.

---

1. MILFORD.
2. 1,800.
3. Seventy-four dollars and eighty-three cents.
4. Fifty dollars (to be paid.)
5. Eighteen.
6. Thirty-five.
7. Thirty-five.
8. Yes.
9. In bad condition. Has since been examined. Practical ventilation, cistern condemned and closed, water closet rebuilt, school building painted throughout, a driven well, eighty feet, water tight from surface drainage.
10. Yes.
11. Wall laid with mortar and with cement.
12. Yes.
13. Not less than twenty-five feet.
14. No, not by ordinance.
15. Never was in better condition than

at present, needed a good water supply-drainage Also badly needed a separate fund to defray expense of Board. Council fight all bills.

16. Scarlet fever, 15 cases; typhoid fever, 1 case, 1 death; measles, 3 cases.

FRANK C. CURRY,
Health Officer.

---

1. MILLERSBURG.
2. 2,000.
3. Don't know.
4. Twenty-five dollars.
5. Five.
6. Ten.
7. All of them.
8. Yes.
9. Very good sanitary condition.
10. Yes.
11. Depth ten feet walled up with plank
12. Yes.
13. Sixty feet.
14. No.
15. Our sanitary condition is all right, and no changes or improvements necessary.
16. Scarlet fever, cases, 1; typhoid fever, cases, 1; measles, cases, 90; deaths, 1 whooping cough, cases, 25.

D. L. OLMSTEAD,
Health Officer.

---

1. MILLERSPORT.
2. 250.
3. Ten dollars.
4. One dollar and fifty cents.
5. No regular meetings.
6. One.
7. One.
8. Yes; that is, our school house in Millersport.
9. Good.
10. No.
11. About a four foot pit dug in the ground.
12. Have only two wells, considered healthy; not examined.
14. Yes; they abound.
15. Ours is not an incorporated village; the sanitary condition is not always the best owing to hog pens and privies.
16. Diphtheria and membranous croup, 12; typhoid fever, cases, 10; deaths, 2; measles, 4.

M. M. COWN,
Health Officer.

---

1. MINGO JUNCTION.
2. 2,200.
3. One hundred and seventeen dollars and sixty-eight cents.
4. Twenty-four dollars and ninety-five cents.
5. Twelve.
6. Twenty-five.
7. Twenty.
8. Yes.
9. Fair condition, except two rooms in one building; ventilation was poor; corrected.
10. Have taken no action as yet.
11. Simply an excavation, usually lined with plank.
12. Have taken no action.
14. Only by permission of Board.
15. Fair, considering the amount of sewerage. A change in the construction of privy vaults is the most important subject to consider at present.
16. Diphtheria and membranous croup, cases, 7; deaths, 2; scarlet fever, cases, 3; typhoid fever, cases, 20; deaths, 1; measles, cases, 10; whooping cough, cases, 30.

F. S. BUCHANAN,
Health Officer.

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1. MOUNT PLEASANT.
2. 800.
3. Thirty dollars.
4. Fifteen dollars.
5. Six.
6. Twelve.
7. Twelve.
8. Yes.
9. We find that the condition of our school houses is good.
10. No.
11. There are a very few vaults. Most of the privys are just built on the ground and cleaned out three or four times a year.
12. No.
14. Yes.
15. Our sanitary condition is very good. The only nuisance we have to contend with is hog pens.
16. Diphtheria and membranous croup, 9 cases; typhoid fever, 4 cases; measles, 1 case.

GEORGE D WALKER,
Health Officer.

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1. MT. WASHINGTON.
2. 800.
3. Seventy-five dollars.
4. Twenty-five dollars.
5. Monthly.
6. Ten.
7. All.
8. Yes.
9. Good.
10. Ye

11. Vaults in ground walled with stone, brick or boards.
12. No.
14. No.
15. The present sanitary condition of village is good.
16. Diphtheria and membranous croup, 2 cases; scarlet fever, 2 cases.

DR. J. W. DODDS,
Health Officer.

---

1. MORROW.
2. 1,000.
3. None.
4. None.
5. Eight.
6. Six.
7. Six.
8. It was.
9. In good condition.
10. To some extent.
11. They are from eight to fifteen feet deep, walled with stone.
12. It does.
13. Fifty feet or more.
14. They are, but kept clean.
15. Sanitary condition is good.
16. Scarlet fever, 9 cases.

DR. B. C. STILES,
Health Officer.

---

1. MURRAY CITY.
2. 1,025.
3. In the neighborhood of one hundred dollars.
4. Eighteen dollars.
5. Six.
6. All in corporation.
7. All the most important ones.
8. Yes.
9. In rather a poor condition. We had school-house scrubbed, windows washed, fence built and new privies constructed.
10. They make special suggestions.
11. With six feet vault with boarded up sides and filled around privy.
12. Yes.
13. One hundred feet.
14. Yes.
15. It is in a fair condition as we have had no contagious diseases here this year. There is some draining and filling that would help sanitary condition.
16. Tyhoid fever, 5 cases, 1 death; whooping cough, 25 cases.

DR. T. J. DILLINGER,
Health Officer

---

1. NAPOLEON.
2. 2,900.
3. Probably five dollars, not including health officer.
4. From May 1st to Nov. 1st, twelve dollars per month after that the council kick at paying any thing or if so, want an itemized bill.
5. Three stated—but left at discretion of health officer to call a meeting if necessary.
6. Two hundred and thirty-four.
7. Two hundred and thirty-four.
8. They were.
9. In good condition, as they are always kept so.
10. They do.
11. With stone or hard brick, with walls and bottom not less than four inches thick, laid with cement, mortar and cement plastered inside and out.
12. They do.
13. Fifty feet.
14. Not during heated season, and at any time if they become a nuisance, they are removed.
15. The present sanitary condition of this village is good. The present sewerage is emptied into the canal, but in the spring a sewer will be enlarged, so the discharge will empty into the Maumee river this village.
16. Diphtheria and membranous croup, 3 cases, 1 death.

D. H. HANCOCK,
Health Officer.

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1. NAVARRE.
2. 1,100.
3. Seventy-five dollars.
4. Twenty-five dollars.
5. Twelve dollars monthly,
6. Several.
7. All.
8. Yes, all in good condition.
9. Good.
10. Yes.
11. Brick, stone and plank.
12. Yes, fifty feet unless water-tight.
14. Yes.
15. Good. No visible improvements.
16. Diphtheria and membranous croup, 1 case, 1 death; scarlet fever, 1 case.

JOHN BAILEY,
Health Officer.

---

1. NEVADA.
2. 1,000.
3. Twenty-five dollars.
4. Twenty-five dollars.
6. Five.
7. Five.
8. Yes.
9. First-class in all respects.

10. No.
12. No.
14. Yes.
15. Condition is fine. Nearly all the resident property owners have driven wells and pure water. What we need is to have property owners furnish renters driven wells instead of surface wells.
16. Diphtheria and membranous croup, 2 cases; scarlet fever, 5 cases; typhoid fever, 9 cases; measles, 22 cases.

DR. S. S. BARRETT,
Health Officer.

---

1. NEW BREMEN.
2. 1,500.
3. Nineteen dollars.
4. Fifteen dollars.
5. Four regular and five special.
6. Thirteen.
7. Twelve.
8. Yes.
9. Good. We are very strict as to the sanitary condition of school, the $19.00 expended were for disinfectants for school building.
10. Yes.
11. Of two-inch hard wood planks with sides and bottom well puddled.
12. Yes.
13. Fifty feet.
14. Yes.
15. Condition good. Wou'd not know of any change.
16. Membranous croup, 1 case, 1 death; typhoid fever, 1 case.

DR. M. S. EKERMEYER,
Health Officer.

---

1. NEW CARLISLE.
2. 1,000.
3. Ten dollars.
4. Ten dollars.
5. Monthly.
6. Four.
7. Four.
8. Yes.
9. Good.
10. Yes.
11. Walled up.
12. Yes.
13. Fifty feet.
14. Yes.
15. Good. No change necessary.
16. Scarlet fever, 15 cases; whooping cough, 30 cases, 2 deaths.

DR. BEN. DAVIS,
Health Officer.

1. NEW CONCORD.
2. 800.
3. Eleven dollars and twenty-five cents.
4. Ten dollars.
5. Eleven meetings.
6. None.
8. Yes.
9. Good.
10. No.
11. Tight boxes.
12. It does.
13. Fifty feet.
14. Yes.
15. Good. There could be some change in our creamery drainage, especially through the summer season.
16. Diphtheria and membranous croup, 1 case, 1 death; scarlet fever, 4 cases; whooping cough, 50 cases.

W. N. SMITH,
Health Officer.

---

1. NEW LONDON.
2. 1,500.
3. One hundred dollars.
4. Sixty dollars.
5. Twelve.
6. One hundred and seventy-five.
7. One hundred and seventy-five.
8. Yes.
9. In good condition.
10. No.
11. Top of ground with door at the back.
12. Yes.
13. Fifty feet.
14. Yes. By four members signing permit.
5. In first class sanitary condition.
16. Diphtheria and membranous croup 1 case, 1 death.

A. M. TURNER,
Health Officer.

---

1. NEW MADISON.
2. 500.
3. Twelve dollars.
4. Ten dollars.
5. Four.
8. Yes.
9. Good.
10. Yes.
11. Dry earth.
12. Yes.
13. Not less than fifty feet.
14. Yes.
15. Good.
16. Typhoid fever, 1 case.

J. F. S. HAGEMAN,
Health Officer.

1. NEW MATAMORAS.
2. 800.
3. Four-hundred dollars.
5. Sixteen.
6. Don't know.
7. 60.
8. Yes.
9. Good.
10. Yes.
11. Wood and brick, deep.
12. None closer than 100 ft.
14. No.
15. Our village is in a very good sanitary condition, except the river front, where filth has been thrown for years.
16. Diphtheria and membranous croup, 134 cases, 8 deaths; typhoid fever, 5 cases; measles, 14 cases.

THEODORE HEDDLESTON,
Health Officer.

---

1. NEW PARIS.
2. 1,000.
3. Nothing.
4. Five dollars.
5. Ten.
6. Three hog pens.
7. By removal of hogs to clean quarters.
8. No.
10. No.
11. Uncemented vaults placed in the earth.
12. No.
14. Yes.
15. Taking into consideration our surroundings, the general sanitary condition is good.
16. Typhoid fever, 3 cases; whooping cough, 30 cases.

DR. LOUIS DUNN,
Health Officer.

---

1. NEW RICHMOND.
2. About 2,300.
3. About one hundred and twenty-three dollars.
4. Fifty dollars.
5. About nine.
6. Five.
7. Five.
8. No.
9. No examination made, reported by school board as good.
10. Yes.
11. From eight to twelve feet deep and boxed up with solid oak two inch thick.
12. No; we have no well.
13. None given.
14. Yes, and regarded as a nuisance.
15. Our village is in good sanitary condition. Very little sickness. No epidemic the past year.
16. Scarlet fever, 2 cases; typhoid fever, 2 cases; measles, 2 cases.

DR. T. J. MULLEN,
Health Officer.

---

1. NEW STRAITSVILLE.
2. 2,800.
3. Eight dollars and fifty cents.
4. Seventy-two dollars.
5. Seven.
6. We investigated a great many nuisances.
7. All were abated.
8. Yes.
9. The school houses were all right but the privy vaults bad, and we had them all emptied and cleaned up very satisfactory.
10. No.
11. Holes six feet deep. Some boarded inside and some are not.
12. Fifty feet, if possible.
14. Yes.
15. At this time of the year the sanitary condition is good but in the hot weather it is poor. Alleys bad, caused by stable manure and pig pens and cows standing in the alleys.
16. Scarlet fever, cases. 24; deaths, 2; typhoid fever, cases, 3; whooping cough, cases, 3; deaths, 1.

M. TRUEX,
Health Officer.

---

1. NEWTON FALLS.
2. 800.
5. Six.
6. Three.
7. Three.
8. They were.
9. Good.
10. They do.
11. With a water-tight box or a vault made of brick and cement, and must be cleaned once a year and oftener if the Board deems it necessary.
12. They do.
13. Fifty feet.
14. They are.
15. Fairly good. I think it would be an improvement to prohibit the raising of hogs and chickens.
16. Scarlet fever, cases, 9; deaths, 1; typhoid fever, cases, 4; measles, cases 11; deaths, 1.

A. C. LAWTON,
Health Officer.

---

1. NEW VIENNA.
2. 900.
3. Thirty six dollars and eighty cents.
4. Twenty-five dollars.

5. Five regular and numerous calls for inspection.
6. All privies, alleys and ditches.
7. Not any by legal process.
8. Yes.
9. Excellent.
10. No vaults allowed.
11. On the surface and soil carted away or buried under two feet of earth.
12. No.
14. Yes; in out lots or where not offensive to neighbors.
15. Present sanitary condition good. The Board has recommended sewering of open ditches.
16. Diphtheria and membranous croup, cases, 17; deaths, 2.

GEO. R. CONARD,
Health Officer.

---

1. NEW WASHINGTON.
2. 900.
5. None
6. One.
7. One.
14. Yes.
15. Good.
16. Typhoid fever, 2 cases, 1 death.

GEO. B. WOLF,
Health Officer.

---

1. NORTH AMHERST.
2. 2,000.
3. About thirty-five dollars.
4. Fifty dollars.
5. Six or eight.
6. Twelve.
7. Twelve.
8. Yes.
9. Good sanitary condition.
10. No.
12. No.
14. Yes.
15. Sanitary condition of town is good.
16. Diphtheria and membranous croup, 2 cases, 1 death; scarlet fever, 3 cases; typhoid fever, 3 cases; whooping cough, 15 cases.

DR. W. H. CORNWELL,
Health Officer.

---

1. NORTH LEWISBURG.
2. 1,000.
3. Nine dollars and eighty cents.
4. Six dollars and seventy-five cents.
5. Five.
6. Three.
7. Three.
8. No.
10. Yes.
11. Sealed with concrete, or in some way made water-tight.
12. Yes.
13. Fifty feet.
14. Yes.
15. Sanitary condition good, except water supply, which is from wells. Water works.
16. Scarlet fever, 1 case.

A. SPAIN,
Health Officer.

---

1. OAK HARBOR.
2. 1,800.
3. Seventy-five dollars.
4. Fifty dollars.
5. About twenty.
6. Thirty-two.
7. Same number as investigated.
8. No.
9. They are in good sanitary condition.
10. Yes.
11. Box and cemented vaults.
12. No.
14. Hog pens are restricted in certain limits and districts in the thickly populated parts of the town.
15. The general sanitary condition of our town is good.
16. Measles, 2 cases.

F. S. HELLER,
Health Officer.

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1. OAKWOOD.
2. 400.
6. None.
8. No.
10. Yes.
11. They are to be water-tight, but there has been none since that ordinance took effect.
12. No.
14. Yes.
15. The sanitary condition of our village is good.

W. E. OSBORN,
Health Officer.

---

1. OHIO CITY.
2. 1,000.
3. Twenty-five dollars.
4. Fifteen dollars.
5. Eight.
6. Four.
7. All.
8. Yes
9. Good.
14. Yes
15. Good.

JAMES MCLEAN,
Health Officer

1. OLMSTED FALLS.
2. 500.
3. Twenty-five dollars.
4. Twenty-five dollars.
6. None reported.
8. Yes.
9. Good sanitary condition.
10. No.
12. No.
14. Yes.
15. The condition of the village is good. Have not had a case of any contagious disease in over a year.

C. H. BARNUM,
Health Officer.

---

1. ORRVILLE.
2. 2,000.
3. Board handles no money.
4. Fifty dollars.
5. Since May 25, four regular and one special meetings.
6. Thirty-one.
7. Thirty-one.
8. Yes.
9. Good sanitary condition.
10. Never has been enforced.
11. Cemented vaults and boxes.
12. No.
14. Yes.
15. Present sanitary condition is as good as it can be under circumstances. Little or no sewerage. Advise complete sewerage, removal of hog pens, and privy vaults properly constructed.
16. Typhoid fever, cases 3.

DR. A. A. BROOKS,
Health Officer.

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1. OTTAWA.
2. 2,400.
4. Seventy-five dollars.
6. One hundred notices to abate were issued.
7. All of any importance.
8. Yes.
9. They are in good condition.
10. Yes.
11. Of brick and cement, or tight box, which is removable.
12. Yes.
13. Fifty feet if not cemented.
14. Yes, where complaint is not made against them, but are abated when complained of.
15. The general sanitary condition is good, except the sewerage, which is bad. Many privies are tapped into sewers with open catch basins. Also several having privy connection empty into the old bed of river, now almost dry for a great part of year and sewage lays from one rise of river to the next exposed to the sun.
16. Diphtheria and membranous croup, cases 3, deaths 1; scarlet fever, cases 6; typhoid, cases 27; measles, cases 2.

FRANK LIGHT,
Health Officer.

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1. PATASKALA.
2. 800.
3. Sixty dollars.
4. Thirty-five dollars.
5. Twelve.
6. Ten.
7. Ten.
8. Yes.
9. Bad.
10. Yes.
12. Yes.
13. Fifty feet.
14. Yes.
15. The conditions at the present time seem to be good. No sickness of any kind.
16. Diphtheria and membranous croup, 4 cases, 3 deaths; scarlet fever, 19 cases, 2 deaths; typhoid fever, 1 case.

FRANK MCCONAUGHEY,
Health Officer.

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1. PAULDING.
2. 3,500.
3. Nine dollars and forty cents.
4. Nothing.
5. Five.
6. Ten.
7. Ten.
8. Yes.
9. In good condition, except the cold air supply rooms. Are fixed now.
10. Yes.
11. With drawers to place under seat. No sink holes are allowed in corporation.
12. Yes.
13. Two hundred feet.
14. No.
15. I consider the town in good sanitary condition.
16. Diphtheria and membranous croup, 14 cases, 1 death; typhoid fever, 5 cases, 2 deaths; measles, 2 cases; whooping cough, 10 cases.

DR. L. P. FAST,
Health Officer.

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1. PEMBERVILLE.
2. 1,700.
3. One hundred and fifty-three dollars and forty cents.
4. One hundred and five notices served @ 20 cts., $21.00.
5. Eight.

6. One hundred and five.
7. Ninety-three.
8. No.
9. Could be better. Water closet should be cleaned every year, which is not the case.
10. No; without a good Board of Health, it can't be done.
11. In every way. I tried hard for cemented vaults; but without a vigorous mayor and Board of Health it can't be done.
12. No.
13. Room enough to get through.
14. Yes, but under strict control.
15. Sanitary condition under circumstances existing is good enough, but creamery and privies too close to wells, are liable to promote typhoid fever or other diseases.
16. Diphtheria and membranous croup, 26 cases, 6 deaths; scarlet fever, 2 cases; typhoid fever, 10 cases; measles, 12 cases; whooping cough, 9 cases.

JOHN SEILER,
Health Officer.

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1. PIKETON.
2. 1,000.
3. Fifty dollars.
4. Twenty-five dollars.
5. Six.
9. Fair.
11. There have been but few of recent construction. The majority of old ones are unwalled or on top of ground.
12. Yes.
13. Fifty feet.
14. Yes.
15. The sanitary condition of town is very good. It has been very healthful for the last few years. Privies and hog-pens are the sources of most annoyance. Hence, the changes which we think most necessary would be the construction of more vaults and removal of hog-pens from corporation. The greatest bar to construction of vaults is the financial condition of a great many of the people.
16. Diphtheria and membranous croup, 3 cases, 1 death; measles, 10 cases.

---

1. PIONEER.
2. 800.
3. Nothing.
4. Nothing.
5. Twelve.
6. Seven.
7. Six.
8. They were.
9. Good.
10. They do not.
11. By digging pits and cleaning out once a year, and when necessary twice a year.
12. They do not.
14. They are to some extent.
15. Fair. A more strict enforcement of the sanitary laws.

W. H. DURBIN,
Health Officer.

---

1. PLEASANT HILL.
2. 700.
3. Fifty dollars.
4. Fifteen dollars.
5. Eight.
7. All.
8. Yes.
9. In good condition.
10. Yes.
11. Cement vault or on the surface.
12. Yes; fifty feet.
14. Yes; if properly cared for.
15. Good; except more care should be taken with wells.
16. Scarlet fever, 7 cases; typhoid fever, 6 cases.

A. J. BAUSMAN,
Health Officer.

---

1. PLEASANT RIDGE.
2. 1,250.
3. About ninety dollars.
4. Thirty-five dollars.
5. Meet once a month. Quorum present five times.
6. One.
7. One.
8. Yes.
9. In good condition.
10. Yes.
11. Our soil is a clay that holds water and they are built out of stone or brick not less than five feet in depth.
12. Yes.
13. Fifty feet.
14. Yes, on certain conditions as to cleanliness.
15. The sanitary condition is fair. We have not as yet a sewerage system nor a practical way of disposal of garbage. We hope for both innear future.
16. Scarlet fever, 5 cases; typhoid fever, 1 case.

C. W. ACOMB,
Health Officer.

---

1. PLEASANTVILLE.
2. 600.
3. About fifteen dollars.
4. Ten dollars.
5. Five.
6. [illegible]

7. Five.
8. No.
10. No.
11. At the discretion of owner.
12. Yes.
13. Fifty feet.
14. Yes, if kept in a sanitary condition.
15. Our present sanitary condition is fair. Sewerage necessary. Keep alleys clean. Don't permit hog pens unless kept clean.
16. Scarlet fever, 2 cases.

WILLIAM E. BAKER, M. D.,
Health Officer.

---

1. PORTAGE.
2. 600.
3. About sixty dollars.
4. Twenty-five dollars.
5. Average one a month.
6. Three.
7. Two.
8. Our school house is new, just completed for the winter term of school.
10. To some extent, not altogether.
11. Our plan is to use boxes or drawers.
12. So far we have not done so.
14. Yes, during fall and winter.
15. Our great need is a system of sewerage, as our town is situated on low, flat land; our sanitary condition is bad, so many oil wells in our town.
16. Typhoid fever, 4 cases; whooping cough, 8 cases.

W. C. PHILO,
Health Officer.

---

1. PROSPECT.
2. 100.
3. About eighty dollars.
4. Fifty dollars.
5. Six or seven.
6. Forty.
7. All.
8. Yes.
9. Fairly good.
10. Yes.
11. Of brick cement.
12. No.
14. Not from April 1st to October 1st.
15. The sanitary condition is good for no water works system or sewers, there being good fall into Scioto river by tile.
6. Diphtheria and membranous croup, 4 cases, 3 deaths; typhoid fever 1 case.

C. M. C. THOMAS, D. D. S.,
Health Officer.

1. PUT-IN BAY.
2. 263.
3. None.
4. None.
5. Four.
6. Two.
7. None.
8. Yes.
9. No school house in the corporation.
10. Yes.
11. Since the Board of Health is in force there has been no new privies erected in the corporation. They are now generally of wood.
12. They do.
13. Fifty feet.
14. They are.
15. Would like to have the sewerage of the Beebe house changed. It empties into the lake, not over two hundred feet from the place where the water supply is pumped to the hotel; also the hog pens in the corporate limits ought to be stopped and the killing of beef.

HUGO STEIERT,
Health Officer.

---

1. RAVENNA.
2. 500.
3. About four hundred dollars.
4. Two dollars a day for actual work.
5. Twelve, promptly attended.
6. It is difficult to tell.
7. All but three that are pending.
8. They were.
9. The basements were cleaned; the upper rooms were thoroughly washed and cleaned at each vacation.
10. Partially.
11. Dry earth boxes. There are some vaults. There are quite a number of closets with cesspools.
12. They do not, there are very few wells in town.
14. They are not.
15. The condition is excellent, while our council pays all our bills. I think the sanitary fund should be under the control of the board of health.
16. Diphtheria and membranous croup, 5 cases, 2 deaths; scarlet fever, 24 cases; typhoid fever, 6 cases, 2 deaths; measles, 13 cases; whooping cough, 40 cases.

H. S. JOHNSON,
Health Officer.

---

1. READING.
2. 4,000.
3. Nothing.
4. One hundred dollars per year.
5. Nine.

6. Sixteen.
7. Sixteen.
8. Yes.
9. Good.
10. Yes.
11. Six feet in depth and walled with stone.
12. No.
13. As far as possible.
14. Yes.
15. Our sanitary condition is good, as our low death rate and entire absence of contagious diseases, at present, will show.
16. Diphtheria and membranous croup, 30 cases, 7 deaths; scarlet fever, 1 case; typhoid fever, 1 case.

GEORGE MAGES,
Health Officer.

---

1. REPUBLIC.
2. 600.
4. Twenty dollars.
5. Seven.
6. Fifteen.
7. Fifteen.
8. Yes.
9. In good sanitary condition.
10. No.
11. The majority are constructed without vaults and some with wooden slide boxes.
12. No.
14. Yes.
15. The present sanitary condition is very good.

H. V. BISHOP,
Health Officer.

---

1. REYNOLDSBURG.
2. About 400.
3. None.
4. None.
5. None.
6. None.
7. None
8. No, except what the school board has done of which I am a member.
9. We try to keep it in fair condition. There is a stagnant pond close to the school grounds owned by two private parties and a cemetery association, a part of which is in the corporation a part out and we are unable to get rid of it. Every year except the past season we have had a number of cases of typhoid fever in that vicinity and along the street near it, what must we do to get rid of it? The fevers occur in dry seasons.
10. No.
11. Just as the owner desires
12. No.
14. Yes, and slaughter houses, too.
15. You can see what the condition is by the description I have given. In the first place we need a well organized board and to get rid of the above mentioned pond if there is a law to that effect; our board was organized a few years ago and did well the first year, since that it has not done anything.
16. Diphtheria and membranous croup, 1 case.

E. G. TAYLOR, M. D.

---

1. RICHMOND. P. O., Grand River.
2. 300.
3. One hundred and thirty dollars.
4. Ninety dollars.
5. None.
6. Ten.
7. Three.
8. School houses belong to township.
10. Yes.
11. Either tight box or cement vault.
12. Yes.
13. Fifty feet.
14. Yes.
15. We consider sanitary condition of our village very good. The buildings are scattered and village covers large amount of territory.

J. H. AVERILL,
Health Officer.

---

1. RIDGEWAY.
2. 500.
3. Sixteen dollars and fifty cents.
4. Ten dollars per annum.
5. Three.
6. One.
7. One.
8. They were.
9. Good.
10. No necessity for same.
11. With vaults. All are put at alley at rear of lot; lots 165 feet deep.
12. Only as above.
14. Yes.
15. It is good. I would not know how to improve it.
16. Diphtheria and membranous croup, cases, 1, deaths, 1; scarlet fever, 3.

DR. E. B. CROW,
Health Officer.

---

1. RISING SUN.
2. 1,000.
4. One hundred and twenty dollars.
5. Ten.
6. Five.
7. Five.
8. Yes.

9. Bad; but they were at once repaired.
10. Yes.
11. With oak tubs which are hauled out and emptied at proper time.
12. No.
14. Yes.
15. The present sanitary condition is good, except a large pile of old sawdust that is in the thickly settled portion of the village.
16. Typhoid fever, cases, 1, deaths, 1; whooping cough, cases, 4.

J. F. PETESE,
Health Officer.

---

1. ROCKY RIDGE.
2. 550.
4. None.
5. Four.
6. Thirteen.
7. Thirteen.
8. Yes.
9. Good except privy.
12. Yes.
13. Fifty feet.
14. Yes.
15. The sanitary condition of the village is good except slight cases of scarlet fever and whooping cough, but nothing serious.

WM. SCHLEGEL,
Health Officer.

---

1. ROGERS.
2. 500.
5. Twelve.
6. Six.
7. Six.
8. Yes.
9. Not good. Were improved and are now in good condition.
10. Yes.
11. As recommended by the Ohio State Board of Health.
12. Yes.
13. Fifty feet.
14. Yes.
15. The sanitary condition is fairly good. The town is small and not so closely built to require rigid rules.
16. Diphtheria and membranous croup, 1 case; scarlet fever, 1 case; whooping cough, 35 cases.

C. T. MCARTON,
Health Officer.

---

1. SABINA.
2. 1,500.
3. Fifty-four dollars and eighteen
4. Fifty dollars.
5. Seventeen.
6. Two hundred and fifty-seven orders to abate.
7. All.
8. No.
10. Yes.
11. Either tight box or cemented vault.
12. Yes.
13. Fifty feet.
14. Yes.
15. The sanitary condition is fair. We have some ponds that become foul when the water is low in the creek. Want them drained.
16. Scarlet fever, 2 cases; typhoid fever, 2 cases, 1 death.

J. L. JOHNSON,
Health Officer.

---

1. SALESVILLE.
2. 400.
3. Twenty-five dollars and five cents.
4. Twenty-one dollars.
5. Nine.
6. Four.
7. Three.
8. No.
11. By sinks.
12. No.
14. Yes.
15. In good health.
16. Diphtheria and membranous croup, 1 case.

W. D. BEEKS,
Health Officer.

---

1. SALINEVILLE.
2. 2,400.
3. Two hundred and four dollars and thirty-four cents.
4. Sixty-five dollars.
5. Twenty one.
6. Ten.
7. All.
8. Yes.
9. In good condition. The new school building containing eight rooms with hot air privies on the Peck-Williamson Co., Cincinnati, system, giving general satisfaction.
10. Yes.
11. Hole in the ground from five to ten feet, walled with brick or stone.
12. Yes.
13. From fifty to seventy feet according to circumstances.
14. Only by special permit from the board of Health.
15. The present condition is reasonably good. There might be some im-

provement as to laying more tile in place of open sewers but the road fund ran out last year.

19. Scarlet fever, 2; cases, 7; deaths, typhoid fever, 1 case; whooping cough, 17 cases.

JAMES CARTER,
Health Officer.

---

1. South
2. No
3. Five dollars
4. Nothing
5. Six
6. Forty-seven
7. Forty-seven
8. Yes
9. Good
10. Yes
11. [illegible]
12. Yes
13. [illegible]
14. Yes
15. We deem it necessary to [illegible] pets running [illegible]
16. Diphtheria, [illegible] cases, 2 deaths, scarlet fever, [illegible] cases, typhoid fever, [illegible] cases, whooping cough, [illegible] cases.

[illegible]
[illegible]

[illegible]

[illegible]

[illegible]

SHELBY

2. [illegible]
3. No means of determining as the sanitary [illegible]
4. Ninety dollars per annum.
5. About fifteen.
6. [illegible]
7. [illegible]
8. No.
9. [illegible]
10. [illegible]
11. Yes.
12. [illegible]
13. [illegible]

[illegible]

[illegible]

[illegible]

SHELBY

2. 1,10

4. Twenty-five dollars per annum.
5. Four.
6. Innumerable.
7. All which required it.
9. Our school house is thoroughly cleaned once each year and whitewashed and is always in the best condition.
10. Yes.
11. Water tight, either of brick or board sealed, according to state regulations.
12. Yes.
13. According to state laws.
14. Only certain months in year.
15. Our village is in good sanitary condition for the present and has been, taking it from the few deaths, and not one from contagion for the past year.
16. Scarlet fever, 2 cases; measles, 7 cases.

J. D. BARCUS,
Health Officer.

---

1. SMITHVILLE.
2. 50).
3. Nothing.
4. No appropriation for officer.
5. Five.
6. Three.
7. All but one.
8. Yes.
9. Very good.
10. No.
11. Old style.
12. Yes.
13. Fifty feet.
14. Yes.
15. Very good. Sewers. Fire ward cisterns.

A. K. SCHAAF,
Health Officer.

---

1. SOMERSVILLE.
2. 375.
3. None.
4. None.
5. One each month.
6. Several.
7. All.
8. Yes.
9. The house was in a good condition.
10. Yes.
11. With stone or brick and laid up with mortar.
12. Yes.
13. Fifty feet.
14. Yes.
15. Our village is in a good condition.
16. Diphtheria and membranous croup, cases 5, deaths 3; typhoid fever, cases 2.

ADAM KAPP,
Health Officer.

1. SOUTH BLOOMFIELD.
2. 250.
3. Thirty dollars and fifty cents.
4. Three dollars, expenses incurred, and one dollar and fifty cents professional visit.
5. About fourteen, nearly every month regular, and three or four called meetings.
6. Two or three.
7. Two or three.
8. No.
9. Having been on the premises repeatedly I am fairly convinced that the sanitary condition of building and outbuilding and grounds are good.
10. Yes.
11. Dug through three and four feet of brown loam and course gravel into fine sand two or three feet deep. The sides boarded up and bottom of box left out.
12. Yes, fifty feet.
13. Fifty feet.
14. Yes.
15. Our soil, subsoil and drainage are about as near perfect as they occur in nature. The town is cursed with a pack of ownerless dogs. Occasionally some one is impressed with the absolute necessity of the death of one or more of the pests. Then there is an exhibition of bad blood and some one is compelled to remove the corpse. Our whole trouble consists in getting good men in the council and on board of health.
16. Scarlet fever, case 1.

CHAS. E. BLACKER, M. D.
Health Officer.

---

1. SPRINGBORO.
2. 500.
3. Seventeen dollars and seventy-five cents.
4. Seven dollars.
5. Seven.
6. Thirteen.
7. Thirteen.
8. Yes.
9. The ventilation is good as all the air that is stirring can get in.
10 No.
11. On the ground without a pit and kept clean.
12. No.
14. Yes, if kept clean.
15. The sanitary condition is good. The board of health and the council are at swords points most of the time, the council questions every bill sent in by the board of health and denies their right to go to any expense.
16. Scarlet fever, cases 3.

JAMES B. HAINE,
Health Officer.

1. St Bernard
2. 9,850
3. Three hundred and thirty dollars, salaries
4. One hundred and fifty dollars.
5. Eight
6. Fourteen
7. Four
8. Always kept in good condition.
9. They are thoroughly cleansed each day and sprinkled with carbolic acid solution whenever we think it needed
10. Yes
11. No privy vault cesspool, nor reservoir into which a privy, water closet, stable or sink is drained except it be water tight, shall be established or permitted within fifty feet of any well, spring or other source of water supply used for drinking or culinary purposes.
12. Fifty feet is possible.
14. No
15. Our village is in good condition prospering every day cement walks and in most parts excellent drainage
16. Diphtheria and membranous croup Scarlet fever [illegible] cases

Dr. S. B. Howard
Health Officer

1. [illegible]
2. 85
3. [illegible]
4. [illegible]
5. Five
6. [illegible]
7. [illegible]
8. [illegible]

7. Three abated; one was let go, error of Board.
8. I went and looked once; as far as I could see they were all right.
10. No.
11. On top of ground and cleaned twice a year.
12. No.
13. There are none nearer than fifty feet that is known of.
14. Yes.
15. Good with the exception of hog pens and one railroad culvert.

John E. Moseley,
Health Officer.

1. Sycamore
2. Six
3. About fifty dollars
4. Thirty dollars
5. Six
6. Six or eight
7. Six
8. Yes
9. Good
10. We [illegible]

16. Typhoid fever, 1 case; whooping cough, 3 cases.

GEO. A. CRANDALL,
Health Officer.

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1. THORNVILLE.
2. 600.
3. Five dollars.
4. Ten dollars.
5. Meet when necessary.
6. Fifteen.
7. Fifteen.
8. Yes.
9. Good, we had three cases of scarlet fever. I fumigated the house since then; we have no new cases, think it was in school house.
10. No.
12. Yes.
13. Thirty feet.
14. Yes.
15. The sanitary condition of our village is good. We have no changes we deem necessary to make.
16. Scarlet fever, 3 cases.

W. T. STEVENS,
Health Officer.

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1. TIPPECANOE CITY.
2. 1,600.
3. For medicine and help, forty-two dollars and eighty-five cents.
4. Fifty dollars, and thirty-five dollars to secretary.
5. 25.
6. Twenty-five and thirty.
7. All of them.
8. Yes.
9. In first class.
10. Yes.
11. Water-tight.
12. Yes.
13. Fifty feet.
14. Yes.
15. The present sanitary condition of the village is in first class condition, and I do not know of any dangers at presen t
16. Diphtheria and membranous croup, 10 cases; scarlet fever, 1 case; typhoid fever, 10 cases, 1 death; whooping cough, 23 cases.

W. H. STRADER,
Health Officer.

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1. TONTOGANY.
2. 400.
3. Seventy-five dollars.
4. Nothing.
5. Ten.
6. About fifty.
7. Fifty.
8. Yes.
9. The grounds were cleaned, and all garbage burned. Privys were cleaned and put in good condition.
10. No.
11. Usually a vault dug about three feet deep.
12. Five rods.
14. Have been declared a nuisance.
15. The sanitary condition is *good*. We have been very thorough during the last year in cleaning up the town. It has never been healthier. The doctora complain of its being *distressedly healthy*.
16. Diphtheria and membranous croup, 2 cases; scarlet fever, 3 cases; typhoid fever, 1 case; measles, 18; whooping cough, 3.

R. J. COLLIN,
Health Officer.

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1. TUSCARAWAS.
2. 500.
4. Fifteen dollars.
5. Three.
6. Four.
7. Four.
8. Yes.
9. Good excepting smoke and sulphur fumes escaping from furnaces.
10. To some extent.
11. Shallow, dry vault of brick and cement, owners to use ashes or dust as an absorbent.
12. Yes.
13. Over fifty feet.
14. Yes.
15. Present condition good. Some garbage and hog pens should be cleaned up.
16. Diphtheria and membranous croup, 9 cases; typhoid fever, 3 cases; measles, 1 case; whooping cough, 10 cases.

DR. C. D. KURTZ,
Health Officer.

---

1. UHRICHSVILLE.
2. Near 5,000.
3. About $200.
4. Fifty dollars per annum until May 1, since then twenty-five dollars per annum.
5. Seventeen.
6. Since May 8, I issued 234 notices to abate nuisances, some of these (perhaps 8 or 10) were second notices for same nuisance. The only trouble we had was with our scavenger regulations; caused 5 arrests for violation of these.
7. Nearly all.
8. Yes.
9. All right, except made some suggestions as to light in Uhrich street building.

10 Yes
11 Water right into sewer or sewer attachment
12 No
13 Our present sewers produce from March to October We are now at work to put both in the
14 Condition of few We need more sewers and a better system of attending to private We expect to come much better in a few days season
15 Diphtheria and membranous croup 4 cases 1 death scarlet fever 2 cases typhoid fever 4 cases measles 1 case whooping cough 1 death This report is from May before that 1 find among death certificates 1 diphtheria 1 measles 1 whooping cough making as above Physicians do not report

DR JAMES A McCLELLAN
Health Officer

1 UNION CITY
2 700
3 One hundred and twenty-five dollars
4 One hundred dollars
5 Six cents
6 Forty two
7 Forty two including thirty-two privy vaults
8 Two were
9 In good condition grounds high and dry good water supplied by an extension of Holly system of water works from Indiana side
10 It does not except as to distance from wells
11 This is left entirely to the option of the builder usually a hole dug in the ground and house built over it
12 It does
13 Fifty feet or more
14 They are subject to sanitary inspection
15 The present sanitary condition of our village is good What we need most in way of improvements is uniformity in the construction of privies and the abolition of the vault system
16 Scarlet fever 1 case typhoid fever 7 cases 2 deaths whooping cough 1

D. J. WISE
Health Officer

1 LITTLE SILVER
2 1500
3 One hundred and seventy five dollars
4 One hundred and twenty five dollars
5 Eight or ten
6 About one hundred and fifty
7 About one hundred
8 No
10 No
12 No
14 We have a city limit no hog pen allowed within 75 feet of dwelling
15 City in a pretty fair condition
16 Diphtheria and membranous croup 4 cases 1 death scarlet fever 4 cases measles 2

DR O C STUTT
Health Officer

1 VENLUE
2 400
3 Nothing to my knowledge
4 No salary
5 But one
6 One
7 One
8 They were not
9 We have a fine brick school building of four large well ventilated rooms and spacious hallways with basement
10 No
11 Many privies are without vaults and leaned out spring and fall while others are much neglected simply a hole full of filth
12 No
14 Yes
15 The sanitary condition of our village is moderate With few exceptions our citizens take pride in keeping everything clean around their premises
16 No deaths from contagious diseases the past year

DR J L SCHROTE
Health Officer

1 WADSWORTH
2 2000
3 Nothing
4 Nothing
5 Fifteen since July, '96
6 Thirty-five
7 Thirty
8 Yes
9 Good as far as the construction will permit
10 By ordinance prevents their construction altogether
13 Answered by question No 10
14 They are under certain restrictions
15 At present very fair More sewerage is required and if the personnel of the present board continues this matter will receive attention in the spring
16 Typhoid fever 3 cases

DR G N LYMAN
Health Officer

1. WAPAKONETA.
2. About 4,500.
3. Seventy-eight dollars and seventy-five cents.
4. Thirty-six dollars.
5. Eight.
6. Fourteen.
7. Fourteen.
8. No
10. No.
11. A hole dug in the ground and walled with brick or plank.
12. No.
14. Yes.
16. Diphtheria and membranous croup, 9 cases, 4 deaths; typhoid fever, 2 deaths.

C. KOHLER,
Health Officer.

---

1. WASHINGTONVILLE.
2. 1,000.
3. Seventy-five dollars.
4. Twenty-five dollars.
5. Ten.
6. Twenty.
7. All.
8. Not by the board of health. The school board has been acting as a sanitary committee.
9. They are in good condition.
10. Yes.
11. Shallow so they can be easily cleaned, but no regularly constructed vault impervious to fecal accumulations.
12. Yes.
13. Fifty feet.
14. Yes.
15. The sanitary condition judging from absence of contagious diseases almost entirely of a serious nature would be considered good.
16. Diphtheria and membranous croup, 3 cases 1 death; scarlet fever, 1 case; typhoid fever, 6 cases; whooping cough, 25 cases.

DR. J. C. GORSUCH,
Health Officer.

---

1. WATERVILLE.
2. 750
3. Fourteen dollars and fifty cents.
4. Twelve dollars.
5. Three.
6. One.
7. One.
8. Yes.
9. First class in every respect.
10. Yes.
11. All privy vaults hereafter constructed shall be of stone or hard brick, with walls and bottom not less than eight inches thick, laid with full joint cement mortar and be cement plastered inside and out so as to be perfectly water-tight.
12. Not less than fifty feet.
14. Yes.

DR. SAMUEL DOWNS,
Health Officer.

---

1. WAUSEON.
2. 2,500.
3. Nothing only in general way.
4. Fifteen dollars.
5. They met twice.
6. Twenty-five or thirty.
7. All that have been reported.
8. It has not, but no complaint has been made.
9. The janitor, I am sure, looks after the school house and vaults in good shape.
10. They do not.
11. In different way, some brick some plank, as a general thing they are kept well cleaned in the town.
12. No attention is paid to that.
13. None.
14. They are not allowed in summer time.
15. Is in very good condition; on responsibility of my own, I have succeeded in having all cases to my knowledge properly attended to.
16. Scarlet fever, 2 cases.

ALFRED R. HILL,
Health Officer.

---

1. WAVERLY.
2. 2,000.
3. One hundred and twenty-seven dollars and fifty-eight cents.
4. One hundred dollars.
5. Twelve.
6. Twenty-four.
7. Twenty-four.
8. Yes.
9. Found in fair condition; ventilation fair; made some changes in water closets.
10. Yes.
11. We have the pit ten feet deep walled up with brick and lime mortar.
12. Yes.
13. One hundred and fifty feet.
14. No.
15. During the past year the sanitary condition of our town has been very good and we have very little trouble in keeping it so; this is the effect of a rigid enforcement of the rules at the start; we have scarcely any trouble now in that line.
16. Diphtheria and membranous croup,

cases 8, deaths 1, scarlet fever, cases 5; typhoid fever, cases 3, deaths 1; measles, cases 126.

G. D. EMMITT,
Health Officer.

---

1. WAYNESBURG.
2. 800.
3. Thirty-three dollars.
4. Twenty dollars.
5. Five.
6. Ten.
7. Ten.
8. Yes.
9. Good.
10. Yes.
11. As laid down in Ohio health laws.
12. Yes; none nearer than fifty feet.
14. Yes, but under the rules few are maintained.
15. The conditions are good, and I know of none that are exposed.
16. Diphtheria, two cases, 2 deaths; whooping cough, cases 3, deaths 1.

DR. W. G. MACKENZIE,
Health Officer.

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4. Thirty-two dollars.
5. Eight.
6. Eight.
7. Eight.
8. Yes.
9. They have the Smead system of heating and dry closets. Condition as good as can be had with that system.
10. Yes.
11. There are no new ones and none have been built since this board was organized.
12. Yes.
13. Fifty feet.
14. Yes, from Nov. 15 to April 15.
15. Good condition.
16. Diphtheria and membranous croup, 1 case; whooping cough, 4 cases.

DR. W. E. OGLESBEE,
Health Officer.

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1. WELLINGTON.
2. 4,500.
3. Thirteen dollars and fifty-five cents.
4. One hundred dollars.
5. Three.
6. [illegible]
7. All citizens.
8. [illegible]
9. Good condition.
10. No.
11. [illegible]
12. No.
13. [illegible]
14. No; we [illegible]

15. It is fair, although the drainage might be improved. If, however, the rules adopted by our board are rigidly enforced, I think the condition will be improved.
16. Diphtheria and membranous croup, 4 cases, 3 deaths.

W. W. CROUSE,
Health Officer.

---

1. WEST JEFFERSON.
2. About 1,000.
3. Fifteen dollars and sixty-five cents.
4. Thirty dollars.
5. Seven.
6. Nine.
7. Nine.
8. No.
10. Yes.
11. By digging a hole in the ground from six to eight feet deep, and walling with plank or brick.
12. Yes.
13. I have forgotten the distance.
14. They are; but they are compelled to keep them clean.
15. The sanitary condition is fair at present and has been for the past year.
16. None.

W. C. KEYSER,
Secretary.

---

1. WEST LIBERTY.
2. 1,300.
3. One hundred and one dollars and twenty-five cents.
4. Seventy-five dollars.
5. Two each month.
6. Ten.
7. Nine.
8. Yes.
9. They were found to be in good condition.
10. Yes.
11. If over fifty feet from a well, just walled up; if under fifty feet, water-tight by cement.
12. Fifty feet.
13. Fifty feet.
14. Yes.
15. The present sanitary condition seems to be good.
16. Scarlet fever, 13 cases; typhoid fever, 6 cases; measles, 1 case.

R. M. FULWIDER,
Health Officer.

---

1. WEST MANCHESTER.
2. About 475.
3. About sixty dollars.
4. Twelve dollars per year.
5. I believe four.
6. Five or six.
7. All.
8. Not to my knowledge.
9. Of course the schoolrooms (3) were all scrubbed out, and were also white-washed before the present term of school began, September 1st.
10. Yes.
11. We have been enforcing the use of water-tight boxes, and dry dirt or lime as a disinfectant and deodorizer.
12. Yes.
13. We allow none nearer than fifty feet.
14. Only on condition that they be kept perfectly clean, so that there is little or no odor.
15. It seems to me that the sanitary condition of our village is about all that could be expected, at the present time. Seems to be exceedingly healthy.
16. Whooping cough, 2 cases.

DR. J. E. HORN,
Clerk.

---

1. WESTON.
2. 1,000.
3. Fifteen dollars.
4. Nothing.
5. One.
6. Six.
7. All.
8. Yes.
9. Splendid. Have the dry closed sytem properly taken care off. Water is driven from well, down to rock.
10. No.
11. To suit owner's taste or convenience.
12. No.
14. Yes.
15. Fair for country village. No deaths from contagious disease having occurred in three years.
16. Diphtheria and membranous croup, 3 cases; scarlet fever, 10 cases; typhoid fever, 3 cases. The scarlet fever cases were all extremly mild, but were quarantined and treated as though we expected the next case to be fatal in its effect.

GEO. B. SPENCER,
Health Officer.

---

1. WEST UNION.
2. 1,200.
3. None.
4. None.
5. None.
6. None.
7. None.
8. No.
9. No.
10. No.
11. Pits in ground.
12. No.

14. Yes.
15. Board has not met for over two years. There is a better general condition from former acts of board.

DR. W. R. COLEMAN,
Health Officer.

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1. WHITEHOUSE.
2. About 600.
3. About eight dollars.
4. About one dollar.
5. Twelve.
6. Six.
7. Four.
8. No.
10. No.
11. Some use boxes, brick or stone.
12. No.
14. Yes.
15. Condition fair. Need better privy vaults. Less hog-pens.
16. Scarlet fever, 4 cases.

C. H. ELLIS M. D.,
Health Officer.

---

1. WILLIAMSPORT.
2. 650.
3. Eighty-six dollars and fifty-eight cents.
4. Twenty-five dollars.
5. Nine.
6. Three hundred.
7. Three hundred.
8. Yes.
9. Very good, as our building is almost new.
10. Yes.
11. With a water-tight receptacle for deposits.
12. Not less than fifty feet.
14. Conditionally 300 feet from any dwelling.
15. Very good; keep it up to present standard.
16. Diphtheria and membranous croup, cases, 88, deaths, 7.

DR. G. O. HAYS,
Health Officer.

---

1. WILLOUGHBY.
2. 1,600.
3. Nothing but to pay health officer, $36.00.
5. None.
6. Twenty-seven.
7. Twenty.
8. Yes.
9. Good.
10. Yes.
11. Not but a few, as our privies are without vaults, and cleaned out once or twice a year as the case may demand.
12. Yes.
13. From fifty to seventy feet.
14. Yes, if kept clean.
15. Good.
16. Scarlet fever, cases, 3; typhoid fever, cases, 2, deaths, 1; measles, cases, 2.

DR. GEO. B. DUNBAN,
Health Officer.

---

1. WILMINGTON.
2. 4,000.
3. Outside of health officer, eighty dollars.
4. Seventy-five dollars.
5. Fourteen.
6. About two hundred and fifty.
7. About two hundred.
8. Yes.
9. In excellent condition.
10. Yes.
11. All vaults must be of stone or hard brick with walls and bottoms not less than eight inches thick, laid with full joint of cement mortar, and be cement plastered inside so as to be perfectly water-tight.
12. Yes.
13. Not nearer than fifty feet.
14. No.
15. Excellent; what we need most is a better system for disposing of our garbage and street cleanings.
16. Diphtheria and membranous croup, cases, 2, deaths, 2; typhoid fever, cases, 15, deaths, 1; whooping cough, cases, many, deaths, 1.

DR. G. M. AUSTIN,
Health Officer.

---

1. WINDHAM.
2. 220.
3. Nothing.
4. Nothing.
5. Two.
6. One.
7. One.
8. Yes.
9. Our school house is well ventilated and in very good condition.
10. No.
11. Stone or cement bottom.
12. Not less than 5 feet
14. Yes.
15. Very good.
16. Measles, 4 cases.

H. J. HIGLEY.
Health Officer.

---

1. WINTON PLACE
2. 1,200.
3. About one hundred and fifty dollars.
4. Sixty dollars
5. One each month.

6. Probably about twenty.
7. All.
8. Not especially, but they are well kept.
10. Yes.
11. If in open ground—walled with stone, if near a cistern they are required to be cemented.
12. Yes.
14. Yes.
15. The village is in good sanitary condition. We have city water, and the gutters are flushed in warm weather. For better condition, sewers are needed.
16. Diptheria and membranous croup, 8 cases, 2 deaths; measles, 70 cases, 1 death.

JNO. R. FROOME,
Health Officer.

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1. WOODSFIELD.
2. 1,500.
3. Nine hundred dollars.
4. Fifty dollars a year.
5. Seven.
6. Thirty.
7. Fifty.
8. Building new one.
10. Yes.
11. By box.
14. Yes.
15. Good.
16. Diphtheria and membranous croup, 1 case; typhoid fever, 2 cases.

A. S. BAKER,
Health Officer.

---

1. WORTHINGTON.
2. About 475.
3. Five dollars.
4. Five dollars.
5. Two.
6. Three.
7. Three.
8. Yes.
9. Ventilation of the rooms by air. Ventilators in the wall connected to the rooms at top and bottom by egisters.
10. Yes.
11. Large box with ring in the end by which the box is pulled out and the contents hauled away whenever needed for health and cleanliness.
12. Not nearer than fifty feet.
14. Some pens in the town, well watched by the board.
15. Cleaning of surface drains.
16. Scarlet fever, one case; Typhoid fever, 4 cases.

DR. D. H. WELLING,
Health Officer.

---

1. WYOMING.
2. 2,000.
3. One hundred and forty dollars.
4. One hundred dollars.
5. Ten.
6. None reported.
7. None.
8. Yes.
9. Excellent.
10. Yes.
11. Of stone or hard brick laid in cement; bottoms 8 inches thick, walls rise 6 inches above surface, cemented inside; made water tight.
12. Yes.
13. Not less than 50 feet.
14. None.
15. Sanitary condition very good. No changes or improvements that are at present practicable.
16. Diphtheria and membranous croup one case; scarlet fever 7 cases.

A. M. VANDYKE,
Health Officer.

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1. ZOAR.
2. 250.
14. No.
15. The present sanitary condition of the village is very good.
16. Deaths none, cases none.

DR. CLEMENS BREIL,
Health Officer.

OHIO STATE BOARD OF HEALTH.
OFFICE OF THE SECRETARY,
COLUMBUS, OHIO, December, 1896.

To the Clerk of the Township Board of Health:

DEAR SIR—The law makes it the duty of your board of health to make an annual report of the State Board of Health. We desire that this report shall be for the year ending December 31, 1896.

Will you please answer the following questions, and mail your report as soon after the close of the year as possible.

An addressed envelope is enclosed herewith for that purpose.

Respectfully,

C. O. PROBST, M. D.,
Secretary.

QUESTIONS.

1. Name of township.
2. County.
3. Estimated population, excluding incorporated cities or villages in the township.
4. Name of clerk.
5. Has your board of health adopted and published the rules and regulations?
6. How many meetings were held during the year?
7. If your board has appointed a health officer, please give his name and address.
8. Has your board of health examined the sanitary condition of school houses within the township.
9. If so, in what condition were they found?
10. Did your board close any school on account of contagious disease?
11. If so, state--
    (*a*) How many schools were closed?
    (*b*) How long a time for each?
    (*c*) On account of what disease?
12. How many nuisances were abated by your board during the year?
13. What nuisances, if any, still exist in the township?
14. How much did the board of health cost the township for the year?
15. Give the number of cases of and deaths from the following contagious diseases reported to your board during the year:

Diphtheria	Cases.....		Deaths.....	
Membranous croup....	"	.....	"	.....
Scarlet fever.....	"	.....	"	.....
Typhoid fever..	"	.....	"	.....
Measles.....	"	.....	"	.....
Whooping cough.....	"	.....		

16. What suggestions have you to offer for incr
boards of health?

ANNUAL REPORTS OF TOWNSHIP BOARDS OF HEALTH.

ADAMS COUNTY.

FRANKLIN. Population, 1,500.
No meetings held. No rules adopted. Nothing done.

GREEN. Population, 650.
Five meetings held. No rules adopted. Eight cases of diphtheria quarantined. Annual expenses, $75.

JEFFERSON. Population, 3,947.
Has adopted rules. Has a health officer. Met once. Physicans do not report contagious diseases. Annual expense, $5.00.

LIBERTY. Population, 1,000.
No rules. No health officer. No meetings. No expenses.

MEIGS. Population, 2,300.
Have adopted rules. No health officer. Nothing spent.

OLIVER. Population, 1,000.
No organization. Nothing done.

TIFFIN. Population, 2,000.
Have rules. No health officer. Nothing spent.

WAYNE. Population, 1,600.
No rules. No health officer. One meeting. Eight cases of diphtheria.

ALLEN COUNTY.

AMANDA. Population, 1,100.
Have adopted rules. No meetings held.

MARION. Population, 4,800.
No rules adopted. Held one meeting. Expenses, $4.50.

MONROE. Population, 2,000.
Have adopted rules. Appointed health officer. Held two meetings. Reports one case scarlet fever.

SUGARCREEK. Population, 1,100.
No rules adopted. No meetings held. No health officer appointed.

ASHLAND COUNTY.

HANOVER. Population, 500.
Have adopted rules. Held one meeting. Clerk is health officer. Expenses, $5.00.

LAKE. Population, 800.
Have adopted rules. No health officer. Reports four cases diphtheria with one death.

ORANGE. Population, 1,000.
[illegible]nization.

[illegible] Population, 800.
Meet each month.
[illegible] $25.

RUGGLES. Population, 700.
Held one meeting. Health officer appointed. No expenses.

SULLIVAN. Population, 500,
Held one meeting. Have health officer. Have done nothing. Expenses, $7. Six cases scarlet fever, four cases typhoid fever and six cases whooping cough reported.

ASHTABULA COUNTY.

ASHTABULA. Population, 1,200.
No rules adopted. Two meetings held. No health officer. Nothing done. Expenses, $10. Four cases of diphtheria, two cases of scarlet fever, one case, one death of typhoid fever. Consumption one case, one death reported.

ANDOVER. Population, 750.
Rules adopted. Two meetings held. Clerk acts as health officer. Expenses, $6. Two cases of scarlet fever reported.

AUSTINBURG. Population, 1,066.
Rules adopted. Held one meeting. Health officer appointed. Expenses, $16.

COLEBROOK. Population, 950.
Rules adopted. One meeting held. Clerk acts as health officer. One school closed six weeks for scarlet fever. School houses examined. Expenses, $10 to $15.

CONNEAUT. Population, 8,500.
No rules adopted. Twelve meetings held. No health officer. Three nuisances abated. No expenses.

DENMARK. Population, 900.
No rules adopted, One meeting held. No health officer. Nothing done. Expense, $3.

GENEVA. Population, 5,000.
Rules adopted. Three meetings held. Health officeer appointed. School houses examined. Five nuisances abated. Expense, $40. Two cases of diphtheria, two cases of scarlet fever, four cases and one death of tpyhoid fever and four cases of measles reported.

HARPERSFIELD. Population, not given.
No rules. One meeting held. Health officer appointed. Nothing done. One case of diphtheria reported.

HARTSGROVE. Population, 650.
Rules adopted. No meetings. Nothing done. No expense.

KINGSVILLE. Population, 1,700.
Rules adopted. Three meetings. Nothing done. Two cases of diphtheria and four cases of scarlet fever reported.

MORGAN. Population, 750.
Rules adopted. One meeting. Health

officer appointed. Examined school houses. No expense. Two cases and one death of scarlet fever reported.

NEW LYME. Population 600.

Three meetings. No health officer. Examined school houses. One nuisance abated. Expense, $10.

ORWELL. Population, 800.

Adopted rules. Have health officer. Four nuisances abated. Expense, $9.50.

PIERPONT. Population, 1,000.

Adopted rules. Held one meeting. Have health officer. One nuisance abated. Expense, $4.00. Fifty cases of whooping cough reported.

SAYBROOK. Population, 1,200.

Adopted rules. No meetings. Have health officer. Two nuisances abated. No expense.

WAYNE. Population, 800.

No rules. Nothing done. No expense.

WINDSOR. Population, 500.

Adopted rules. Four meetings. Have health officer. Examined school houses. Expense, $10.

ATHENS COUNTY.

AMES. Population, 900.

No rules. No meetings. Nothing done. Four cases of diphtheria and two cases of typhoid fever reported. No expense.

ATHENS. Population, not given.

No rules. Closed two schools for three weeks on account of scarlet fever. Expense, $20. Four cases and two deaths of scarlet fever.

CANAAN. Population, 1,000.

No rules. No meetings. Health officer appointed. One school closed two weeks on account of diphtheria. Two cases of diphtheria and one case and one death of membranous croup.

CARTHAGE. Population, not given.

Adopted rules. Held three meetings. Examined school houses. Closed school for two months on account of scarlet fever. Nuisance abated. Expense, $3. Four cases of scarlet fever, five cases and one death of typhoid fever and one case of measles.

DOVER. Population, 1,500.

No rules. Held two meetings Health officer appointed. School houses examined. Closed two schools three weeks each on account of diphtheria and scarlet fever. Expense, $24.00 Nine cases, two deaths, diphtheria; thirty-three cases, scarlet fever, one case, typhoid fever; seven cases whooping cough.

LODI. Population, not given

No rules. No meetings. Nothing done.

TROY. Population, 700.

Adopted rules. Held one meeting. Have health officer. Examined school houses. Adopted one nuisance. Expense, $10.00. Two cases diphtheria. Five cases scarlet fever.

WATERLOO. Population, 2,500.

No rules. Trustees act as health officers. Closed two schools three weeks on account of scarlet fever.

AUGLAIZE COUNTY.

CLAY. Population, 1,000.

Rules adopted. Held two meetings. Have health officer. Abated two nuisances. Expense, $18.15.

DUCHANQUET. Population, 1,000.

Rules adopted. Held two meetings. No health officer. Abated two nuisances. Expense, $50.00.

GERMAN. Population, 3,600.

Rules adopted. Held two meetings. Clerk is health officer. Examined school houses. Expense, $10.00. Two cases, one death diphtheria. One case, one death membranous croup.

GOSHEN. Population, 300.

Rules adopted. Held eight meetings. Have health officer. Examined school houses. Closed three schools for five weeks on account of diphtheria and membranous croup. Expenses, $19.50. Forty-six cases diphtheria. Twenty-six cases, six deaths, membranous croup. Eight cases typhoid fever.

NOBLE. Population, 1,500.

No rules. No meetings. Abated two nuisances.

PUSHETA. Population, not given.

No rules. Held one meeting. Nothing done. One case, one death typhoid fever. No expense.

UNION. Population, 1,600.

Rules adopted. Held two meetings. No health officer. Nothing done. Expense, $5.25. One case diphtheria.

WASHINGTON. Population, 1,500.

Rules adopted. Held one meeting. Have health officer. Nothing done. Expense, $5.00.

BELMONT COUNTY.

FLUSHING. Population, 2,500.

Rules adopted. No meetings held. Health officer appointed. School houses examined. Closed one school one week on account of scarlet fever. Two cases, two deaths, membranous croup. One case, one death scarlet fever. No expense.

GOSHEN. Population, 1,350.

Rules adopted. Held two meetings. Closed one school for three weeks on account of membranous croup. Nine

cases, three deaths, membranous croup. Two cases scarlet fever, one case, one death, typhoid fever.

KIRKWOOD. Population, 1,200.

No rules. Two meetings held. Have health officer. Examined school houses. Expenses, $12.00.

MEAD. Population, 900.

Rules adopted. Held one meeting. Nothing done.

PEASE. Population, 4,000.

Rules adopted. Held four or five meetings. Have two health officers. Closed two schools from two to eight weeks on account of small-pox. Three or four nuisances abated. Expenses, $500.00. One case scarlet fever. One case typhoid fever.

SOMERSET. Population, not given.

Rules adopted. Held four or five meetings. Have health officer. Examined school houses. Closed one school two weeks on account of scarlet fever. Expenses, $75.00. Eight or ten cases scarlet fever with one death.

WARREN. Population, 1,700.

Rules adopted. Held two meetings. Have health officer. Abated seven nuisances. Expense, $20.00. One case, one death diphtheria. Three cases, one death, scarlet fever.

WASHINGTON. Population, 2,000.

Rules adopted. Held six meetings. Have health officer. Closed one school one week on account of diphtheria. Expense, $120. Three cases, three deaths, diphtheria.

WAYNE. Population, 1,800.

Rules adopted. Held three meetings. Nothing done. Expense, $18.00.

WHEELING. Population, 1,500.

Rules adopted. Held three meetings. Closed one school ten days on account of diphtheria. Expense, $10.00. Diphtheria, one death; four cases scarlet fever.

BROWN COUNTY.

BYRD. Population, 1,800.

No rules. No meetings. Nothing done.

FRANKLIN. Population, 1,400.

No rules. No meetings. No expense. Nothing done.

GREEN. Population, 1,850.

No rules. Two meetings held. Closed two schools, one and two weeks on account of diphtheria. Expense $3.00. Three cases, one death, diphtheria.

BUTLER COUNTY.

FAIRFIELD. Population, 2,445.

No rules. Held nine meeting. Have three health officers. Examined school-houses. Closed two schools about two weeks on account of diphtheria and chicken-pox. Abated eleven nuisances. Expense, $55.00 Five cases diphtheria, five cases whooping cough.

HANOVER Population, 1,300.

Rules adopted. Held one meeting. Have health officer. Examined school-houses. Abated five nuisances. Expense, $10 00.

OXFORD. Population, not given.

Rules adopted. Held one meeting. No health officer. Nothing done. No expense. Four cases typhoid fever.

ST. CLAIR. Population, 1,300.

Rules adopted. Held three meetings. No health officer. Abated one nuisance. Expense, $26.00. One case diphtheria.

CARROLL COUNTY.

AUGUSTA. Population, 1,350

Rules adopted. Held two meetings. Expense, $18.50. One case, one death, diphtheria.

BROWN. Population, 1,500.

Rules adopted. Held one meeting. Have health officer. Expense, $6,00. Nothing done. One case, one death, membranous croup; one case, one death, whooping cough.

CENTER. Population, 1,500.

No rules. No meetings. Nothing done. Ten cases typhoid fever.

FOX. Population, 1,200.

Rules adopted. Held one meeting. Clerk acts as health officer. Nothing done. Expense, $6.10.

LOUDON. Population, 1,000.

No rules. No meetings. Have health officer. Nothing done. No expense.

MONROE. Population, 2,000.

No rules. No meetings. Have health officer. No expense. Nothing done.

PERRY. Population, 1,500.

No rules. No meetings. No health officer. Nothing done.

ROSE. Population, 1,600.

No rules. Held one meeting. Have health officer. Closed one school twenty-six days on account of scarlet fever. No expense. One case scarlet fever.

UNION. Population, 800.

No rules. No meetings. Have health officer. No expense. Nothing done.

CHAMPAIGN. Population, 1,600.

Rules adopted. Held twelve meetings. Expense, $3.00. Five cases scarlet fever. Nothing done.

JACKSON. Population, 1,500.

Rules adopted. Held fourteen meetings. Have health officer. Examined school houses. Closed two schools for one week on account scarlet fever. Ex-

[illegible] Expenses, three dollars. Secretary three dollars.

[illegible] Population [illegible]

Rules adopted. Held [illegible] meetings. [illegible] Clerk [illegible] Next meeting time. No expense. Two cases [illegible] fever.

[illegible] Population [illegible]

Rules adopted. [illegible] meetings. No [illegible] Next meeting time. No expense.

[illegible] COUNTY

[illegible] Population [illegible]

Rules adopted. [illegible] meetings. No health officer. [illegible] expense. [illegible] cases scarlet fever.

[illegible] Population [illegible]

Rules adopted. [illegible] meetings. Have health officer. [illegible] expense. Nothing done. [illegible] cases scarlet fever.

[illegible] Population [illegible]

Rules adopted. Three meetings. Have health officer. [illegible] expense. Nothing done. [illegible] cases scarlet fever.

[illegible] Population [illegible]

Rules adopted. [illegible]

UNITY. Population, 2,500.
No rules. Three meetings. No health officer. Nothing done. No expense. One case, one death membranous croup, twenty cases, five deaths scarlet fever.

WEST. Population, 1,900.
No rules. No meeting. Have health officer.

COSHOCTON COUNTY.

CRAWFORD. Population, 1,000.
No rules. No meetings. No health officer. Nothing done. No expense.

FRANKLIN. Population, 1,000.
No rules. No meetings. No health officer. Nothing done. Four cases diphtheria, nine cases, four deaths typhoid fever.

MONROE. Population, 1,300.
No rules. Three meetings. Have health officer. Examined school houses. Abated several nuisances. Eleven cases, one death typhoid fever, twenty cases whooping cough.

PERRY. Population, 1,250.
No rules. One meeting. Closed one school three weeks on account scarlet fever. Five cases scarlet fever.

TUSCARAWAS. Population not given.
Rules adopted. Two meetings. Trustees act as health officer. Examined school houses. Expense, $150. Three cases diphtheria; one case scarlet fever; one case typhoid fever; one case, one death measles; one case whooping cough.

CRAWFORD COUNTY.

BUCYRUS. Population not given.
Rules adopted. Three meetings. Have health officer. Examined school houses. No expense.

CRANBERRY. Population 1,000.
Rules adopted. No Meetings. Clerk acts as health officer. Expense, $4.50. Two cases scarlet fever, two cases typhoid fever.

HOLMES. Population not given. Has no board of health. Two cases typhoid fever, one case whooping cough.

JACKSON. Population, 2,000.
No rules. Two Meetings. Have health officer. Examined schools houses. Expense, $10. Six cases one death diphtheria.

LIBERTY. Population, 1,700.
No rules. Four meetings. Expens- $12. One diphtheria one scarlet fever.

LYKENS. Population, 1,200.
Two meetings. Have health officer. Abated one nuisance. Expense, $26.75. Two deaths from whooping cough.

TEXAS. Population, 600.
Rules adopted. No meetings. No health officer.

TODD. Population, 950.
Rules adopted. One meeting. Have health officer. Examined school houses. Closed one school for a week on account of diphtheria. Expense, $8. Four cases, one death diphtheria. Three cases two deaths typhoid fever.

WHETSTONE Population, 1,720.
No rules. Twelve meetings. Expense, $5.00. Three cases, two deaths diphtheria.

CUYAHOGA COUNTY.

BEDFORD. Population, 2,000.
Rules adopted. One meeting. No health officer. Abated one nuisance. Expense, $100. Physicians do not report contagious diseases.

BRECKSVILLE Population, 1,000.
Rules adopted. Two meetings. No health officer. Examined school houses. Abated two nuisances. Expense $2.

BROOKLYN. Population, 4,000.
Rules adopted. Three meetings. Have two health officers. Examined school houses. Expense, $75. One case scarlet fever, two cases typhoid fever.

EAST CLEVELAND. Population, 1,200.
Rules adopted. Two meetings. Have health officer. Examined schools. Abated one nuisance. Expense, $50. One case, one death diphtheria, seven cases scarlet fever, two cases typhoid fever.

EUCLID. Population, 2,800.
Rules adopted. Three meetings. No health officer. Examined school houses. Closed one school a week on account scarlet fever. Abated one nuisance. Expense, $15. One case diphtheria; one case, one death, membranous croup; two cases scarlet fever; five cases typhoid fever; one case, one death whooping cough.

NEWBURGH. Population, 4,000.
Rules adopted. Twelve meetings. Have health officer. Examined school houses. Abated four nuisances. Expense, $24. Five cases, one death diphtheria; six cases, one death typhoid fever.

OLMSTED. Population, 1,900.
Rules adopted. No meetings. Have health officer. Examined school houses. Expense, $25.00.

PARMA. Population, 1,500.
No rules. No meetings. Nothing done.

STRONGSVILLE. Population, 1,000.
Rules adopted. Have health officer. Examined school houses. No expense. Twelve cases, one death scarlet fever.

WARRENSVILLE. Population, 2,000.
No rules. No meetings. Nothing done. No expense.

OHIO. Population, 1,500.
No rules. Four meetings. Have health officer. Examined school houses.

PERRY. Population, 2,000.
Rules adopted. Three meetings. Have health officer. Two nuisances abated. Expense $20. Five cases, one death, diphtheria. Cases of contagious diseases not all reported.

WALNUT. Population, 1,600.
No rules. One meeting. No health officer. Nothing done. Two cases diphtheria; two cases scarlet fever.

GEAUGA COUNTY.

BURTON. Population, 1,100.
No rules. No meetings. No expense. Nothing done.

CHARDON. Population, 500.
Rules adopted. One meeting. Clerk acts as health officer. One school closed one week on account scarlet fever. No expense. One case scarlet fever.

CHESTER. Population, [illegible].
No rules. No meetings. Nothing done.

HAMDEN. Population, 700.
No rules. No meetings. Have health officer. Examined school houses. Closed one school about six weeks on account scarlet fever. One nuisance abated. No expense. Two cases scarlet fever, three cases measles.

MIDDLEFIELD. Population, 900.
No rules. Two meetings. Nothing done. One case whooping cough.

MUNSON. Population, 900.
No rules. No meetings. Three nuisances abated. Three cases typhoid fever.

MUNSON. Population, 800.
No rules. No meetings. One school closed one week on account measles. No expense.

PARKMAN. Population, 800.
No rules. No meetings. Three nuisances abated. Three cases typhoid fever.

RUSSELL. Population, 1,000.
Rules adopted. One meeting. Examined school houses. One nuisance abated. No expense. One case membranous croup.

GREENE COUNTY.

BEAVER CREEK. Population, 2,000.
Rules adopted. Two meetings. Clerk acts as health officer. Expense, $1.50. One case diphtheria; four cases typhoid fever.

JEFFERSON. Popula[illegible]
No rules. Two [illegible]
act as health office[illegible]
houses. Expe[illegible]
one death, diph[illegible]

ROSS. Population, 1,100. Rules adopted. Four meetings. Clerk acts as health officer. Nothing done. Expense $2.00.

SILVER CREEK. Population, 3,000.
No rules. One meeting. Have health officer. Ten nuisances abated. Expense $20.00. Two cases diphtheria; one case typhoid fever.

XENIA. Population, 5,000.
Rules adopted. Three meetings. Clerk acts as health officer. Five nuisances abated. Expense, $7.50. Two cases diphtheria; five cases scarlet fever. One case, one death, typhoid fever.

GUERNSEY COUNTY.

JACKSON. Population, 2,000.
Rules adopted. Twelve meetings. Have health officer. Examined school houses. Closed one school two weeks on account diphtheria. Five nuisances abated. Expense, $5.00. Four cases, two deaths diphtheria.

MILLWOOD. Population, 1400.
No rules. No meetings. One nuisance abated.

OXFORD. Population, 500.
No rules. No meetings. Have health officer. No expense.

VALLEY. Population, 2,000.
Rules adopted. One meeting. Have health officer. Examined school houses. Closed one school one week on account scarlet fever. Expense, $5.00.

WASHINGTON. Population, 700.
Rules adopted. No meetings. Have health officer. No expense. Nothing done.

HAMILTON COUNTY.

ANDERSON. Population, 3,000.
Rules adopted. Twelve meetings. Have health officer. Examined school houses. Abated three nuisances. Eight cases, one death diphtheria. Ten cases scarlet fever. Six cases typhoid fever. Seventeen cases measles. Twenty-two cases whooping cough.

COLORAIN. Population, 3,500.
Rules adopted. Three meetings. Clerk acts as health officer. Examined school houses. Closed one school three weeks on account of scarlet fever. Expense, $60. Five cases, one death diphtheria. Two cases, one death membranous croup. Eight cases, one death, scarlet fever. Four cases, one death, typhoid fever. Twenty cases, one death, measles.

COLUMBIA. Population, 6,000.
Rules adopted. Four meetings. Have [illegible] officer. Examined school houses. [illegible], $50. Eight cases diphtheria. [illegible]ses scarlet fever. One case

CROSBY. Population, 900.
No rules. Twelve meetings. No health officer. Nothing done. Expense, $25. One case diphtheria. Three cases membranous croup.

DELHI. Population, not given.
Rules adopted. No meetings. Trustees act as health officers. Closed one school three weeks on account diphtheria. Abated one nuisance. Expense, $64.80. Three deaths, diphtheria. Cases not reported.

GREEN. Population, not given.
Twelve meetings. Have health officer. Examined school houses. Expense, $2.35. Eleven cases, two deaths, diphtheria. Three cases, one death, scarlet fever. Four cases typhoid fever. Fourteen cases measles. One case whooping cough.

MILL CREEK. Population, 1,500.
Rules adopted. Seven meetings. Clerk acts as health officer. Examined school houses. Abated seven nuisances. Expense, $212. Five cases, four deaths diphtheria. Two cases scarlet fever. One case measles.

SPENCER. Population, 170.
Rules adopted. Two meetings. Clerk acts as health officer. Examined school houses. Expense, $10.50.

SPRINGFIELD. Population, not given
Rules adopted. Six meetings. Clerk acts as health officer. Expense, $5.00. Seven cases, two deaths, diphtheria. Three cases scarlet fever. One case measles.

SYCAMORE. Population, 6,000.
Rules adopted. Six meetings. Abated three nuisances.

SYMMES. Population, 3,000.
Rules adopted. Monthly meetings. Have health officer. Examined school houses. Expense, $25. Four cases, one death, diphtheria. Three cases, one death, measles. Six cases, one death, whooping cough.

WHITEWATER. Population, 900.
Rules adopted. Three meetings. Have health officer. Examined school houses. Closed one school for a week on account of diphtheria. Abated one nuisance. Expense, $18. Three cases diphtheria.

HANCOCK COUNTY.

BLANCHARD. Population, not given.
Not organized as a board of health.

BIG LICK. Population, 800.
No rules. One meeting. Nothing done.

MADISON. Population, 1,000.
No rules. Six meetings. Have health officer. Burned dead animals.

ORANGE. Population, 900.
No rules. Four meetings. Clerk acts as health officer. Closed two schools two weeks on account scarlet fever. Abated one nuisance. Expense, $20. One case, one death, diphtheria. Six cases scarlet fever. Three cases typhoid fever.

PORTAGE. Population, 700.
Rules adopted. No meetings. No health officer. Nothing done.

WASHINGTON Population, 1,000.
Rules adopted. Clerk acts as health officer. No expense.

HARDIN COUNTY.

BUCK. Population, 2,000.
Rules adopted. Twelve meetings. Clerk acts as health officer. Closed four schools on account diphtheria. Abated one nuisance. Expense, $50. Ten cases, one death, diphtheria. Three cases scarlet fever.

DUDLEY. Population, 1,400.
Rules adopted. Two meetings. No health officer. Closed two schools ten days on account scarlet fever and diphtheria. Expense, $40. Eleven cases, three deaths diphtheria. Seven cases scarlet fever. One case, one death, typhoid fever.

JACKSON Population, 900.
Rules adopted. One meeting. Have health officer. Examined school houses. Closed three schools two to three weeks on account scarlet fever and diphtheria. Abated one nuisance. Four cases one death, diphtheria. Five cases scarlet fever.

MCDONALD. Population, 2,500.
Rules adopted. Six meetings. Clerk acts as health officer. Closed six schools from one to three weeks on account diphtheria. Disinfected eight houses. Expense, $100. Thirty-four cases, seven deaths, diphtheria. Three cases, three deaths, membranous croup. Two cases typhoid fever.

ROUNDHEAD. Population, 1,000.
Rules adopted. Ten meetings. Have health officer. Examined school houses. Closed four schools on account diphtheria. Expense, $125.00. Thirty-four cases, four deaths, diphtheria. One case, one death, membranous croup. One case, one death, scarlet fever. Fourteen cases, one death, typhoid fever.

WASHINGTON. Population, 1,500.
Rules adopted. One meeting. Have health officer. Nothing done.

HARRISON COUNTY.

MOOREFIELD. Population, 1,500.
Rules adopted. Two meetings. Have health officer. No expense. One case diphtheria.

NOTTINGHAM. Population, 800.
Rules adopted. Two meetings. Clerk acts as health officer. Expense, $25.00. One case diphtheria; one case scarlet fever.

RUMLEY. Population, not given.
Rules adopted. One meeting. Have health officer.

WASHINGTON. Population, 1,000.
Rules adopted. One meeting. No health officer. Expense, $10.00.

HENRY COUNTY.

FREEDOM. Population, 900.
Nothing done.

HARRISON. Population, 1,100.
One meeting. Closed one school for a month on account scarlet fever. Expense, $10.00. Six cases scarlet fever. Two cases typhoid fever.

LIBERTY. Population, not given.
Rules adopted. One meeting. Have health officer. Expense, $6.00. One case typhoid fever.

MONROE. Population, not given.
Rules adopted. One meeting. No expense.

WASHINGTON. Population, not given.
Rules adopted. Twelve meetings. Closed one school two weeks on account diphtheria. One case diphtheria. One case typhoid fever.

HIGHLAND COUNTY.

JACKSON. Population, 1,200.
Nothing done.

MADISON. Population, 5,000.
Rules adopted. Four meetings. Two nuisances abated. Expense, $10.50. One case membranous croup.

PAINT. Population, 1,400.
Rules adopted. Two meetings. Have health officer. Examined school houses. Closed four schools for two weeks on account diphtheria.

PENN. Population, 1,750.
No rules. One meeting. Trustees act as health officers. Abated one nuisance. Expense, $4.38. One case diphtheria. Four cases scarlet fever.

SALEM. Population, 1,000.
Nothing done.

HOCKING COUNTY.

BENTON. Population, 800.
Rules adopted. Clerk acts as health officer. No expense.

GOOD HOPE. Population, 1,200.
No rules. One meeting. Nothing done.

HOLMES COUNTY.

HARDY. Population, 1,500.
Rules adopted. Monthly meetings. Have health officer. Examined school houses. No expenses. One case, one death, membranous croup.

KILLBUCK. Population, 1,750.
No organized board.

PAINT. Population, not given.
Nothing done.

RIPLEY. Population, 1,300.
No rules. Three meetings. Abated one nuisance. Expense, $14.90. One case scarlet fever.

WALNUT CREEK. Population, 900.
No rules. Closed two schools three weeks on account scarlet fever. No expense.

HURON COUNTY.

CLARKSFIELD. Population, 1,100.
Rules adopted. One meeting. Closed one school two weeks on account of diphtheria. No expenses. One case diphtheria; two cases scarlet fever; one case typhoid fever.

FAIRFIELD. Population, 1,300.
Rules adopted. Four meetings. Clerk acts as health officer. Abated two nuisances. Expense, $18. Two cases, one death typhoid fever; one case measles.

GREENWICH. Population, 600.
No organized board.

LYME. Population, 1,000.
No rules. One meeting. Have health officer. Nothing done. Two cases, two deaths diphtheria.

NEW LONDON. Population, 600.
Rules adopted. Two meetings. Have health officer. Examined school houses. Abated one nuisance. Expense, $4.50. Two cases typhoid fever.

NORWICH. Population, 1,000.
Nothing done.

PERU. Population not given.
Rules adopted. Have health officer. Examined school-houses. No expense.

TOWNSEND. Population 1,200.
Have rules. No meetings. Trustees act as health officers. No expense.

JACKSON COUNTY

BLOOMFIELD. Population, 1,200.
Nothing done.

COVE. Population not given.
No rules. No meetings. Abated four nuisances. No expense. Twenty cases, six deaths diphtheria.

FRANKLIN. Population, 800.
Have rules eting Trustees act as
T
e

JACKSON. Population, 2,000.
Have rules. Five meetings. Closed eleven schools for two weeks on account of diphtheria. Expense, $35. Twenty-eight cases, one death diphtheria; three cases, one death typhoid fever; eighty cases, three deaths measles; thirty-one cases whooping cough.

JEFFERSON. Population, 600.
No rules. Five meetings. Have health officer. Closed seven schools two months on account of diphtheria. Twenty cases, five deaths, diphtheria; one case, one death, membranous croup; two cases, one death, typhoid fever.

LIBERTY. Population, 1,500.
Rules adopted. Two meetings. Clerk acts as health officer. Closed one school two weeks on account of diphtheria. Expense, $5.00. Six cases, two deaths, diphtheria; one case scarlet fever.

LICK Population, 1,500
No rules. One meeting. Examined school houses. Expense, $4.00. Six cases, one death diphtheria.

MADISON. Population, 2,000.
Rules adopted. Two meetings. Clerk acts as health officer. Examined school houses. Closed two schools for three and four weeks on account of diphtheria. Abated two nuisances. Expense, $29. Fifty-four cases, four deaths diphtheria.

WASHINGTON. Population, 1,600.
No rules. Two meeeings. No health officer. Closed four schools on account diphtheria. Expense $47.50. Forty-nine cases, ten deaths diphtheria; one case, one death membranous croup; one case, one death typhoid fever; six cases whooping cough.

JEFFERSON COUNTY.

ISLAND CREEK. Population, 2,400.
No rules. No meetings. Examined school houses. Abated one nuisance. No expense. Four cases, one death scarlet fever; two cases of typhoid fever.

STEUBENVILLE. Population not given.
No organized board of health.

WAYNE. Population, 1,900.
Nothing done.

KNOX COUNTY.

BUTLER. Population, 800.
No rules. Three meetings. No health officer. Closed three schools from two to four weeks on account of scarlet fever. Four cases scarlet fever.

HARRISON. Population, 600.
No rules. One meeting. No health officer. Closed five schools for two weeks account of scarlet fever. No expense.

HOWARD. Population, 1,300.
No rules. Three meetings. No health officer. Examined school houses. Closed six schools for two weeks on account of scarlet fever. Expense, $10. Ten cases scarlet fever; twelve cases, one death measles.

JACKSON. Population not given.
No organized board.

JEFFERSON. Population, 850.
Rules adopted. No meetings. Have no health officer. No expense.

LIBERTY. Population, 1,500.
Rules adopted but not published. Three meetings. Clerk acts as health officer. Closed two schools two or three weeks on account scarlet fever. Abated one nuisance. Expense $15. Three cases scarlet fever.

MILFORD. Population, 869.
No rules. Two meetings. Have health officer. Closed two schools two weeks on account diphtheria. Expense $6.25. Thirty-one cases diphtheria; two cases, one death, membranous croup; nineteen cases, one death, measles; fifteen cases whooping cough.

MONROE. Population, 1,200.
Rules adopted. Have health officer. Closed two schools one week on account diphtheria and scarlet fever. Three cases, one death, diphtheria.

PLEASANT. Population, 1,000.
Nothing done.

LAKE COUNTY.

KIRTLAND. Population, 1,000.
Rules adopted. Three meetings. Have health officer. Examined school house. Closed three schools on account of measles. Expense $21.50. Three cases measles.

MADISON. Population, 2,000.
Rules adopted. One meeting. Have health officer. No expense.

PERRY. Population, 1,300.
Rules adopted. No health officer. Examined school houses. Expense $5.

LAWRENCE COUNTY.

DECATUR. Population, 500.
Rules adopted. Six meetings. No health officer. Examined school houses. Two nuisances abated. No expense. Two cases, one death, diphtheria; four cases, two deaths, membranous croup.

ROME. Population, 3,000.
Rules adopted. No meetings. Have health officer. Abated one nuisance. Expense $10. Twelve cases diphtheria; ten cases, two deaths, typhoid fever; four cases, measles.

[illegible] COUNTY

[illegible] Population [illegible]
Rules adopted [illegible] meeting. Clerk acts as health officer. Examined school. Twenty cases scarlet fever.

[illegible] Population [illegible]
Rules adopted [illegible] meeting. Health officer. Examined all children. Closed two schools for two weeks on account diphtheria. No expense. Three cases diphtheria, two cases one death scarlet fever.

[illegible] Population [illegible]
No rules. Six meetings. Health officer. Closed four schools three or four weeks on account diphtheria and scarlet fever. Expense $[illegible]. Two cases two deaths diphtheria, two cases no death scarlet fever.

[illegible] Population [illegible]
Rules adopted. Three meetings. State health officer. [illegible] cases scarlet fever. Closed [illegible] schools two weeks. Expense $[illegible]. Seventeen cases scarlet fever, one death. [illegible] cases typhoid fever.

[illegible] Population [illegible]
Nothing done. Three cases scarlet fever.

[illegible] Population [illegible]
Rules adopted. Two meetings. State health officer. [illegible] cases scarlet fever. Closed [illegible] weeks on account scarlet fever. Expense $[illegible]. [illegible] cases scarlet fever, one death. [illegible] cases typhoid fever.

[illegible] Population [illegible]
Rules adopted. Two meetings. State health officer. Examined school. Closed [illegible] weeks on account diphtheria. Expense $[illegible]. Two cases diphtheria, one death. Two cases scarlet fever.

[illegible] Population [illegible]
Rules adopted. Two meetings. Health officer. Examined school. Closed [illegible] weeks on account diphtheria. Expense $[illegible]. Two cases diphtheria, one death. Two cases scarlet fever.

[illegible] Population [illegible]
Rules adopted. Two meetings. Clerk acts as

ELYRIA. Population, 800.
Rules adopted. Twelve meetings. Have health officer. Examined school houses. Abated two nuisances. Expense $3. Twenty two cases measles.

HENRIETTA. Population, 700.
Rules adopted. Four meetings. Clerk acts as health officer. Closed one school for four weeks on account of scarlet fever. Expense $10. Five cases scarlet fever.

HUNTINGTON. Population, 500.
Nothing done.

PENFIELD. Population, 700.
Rules adopted. No meetings. Have health officer. Expense $1. Two cases diphtheria.

RUSSIA. Population, 550.
Rules adopted. One meeting. Have health officer. One school closed one week on account of diphtheria. No expense.

WELLINGTON. Population, 3,000.
Rules adopted. One meeting. Have health officer. Expense $3.

LUCAS COUNTY.

ADAMS. Population, 2,000.
No rules. One meeting. Clerk acts as health officer. Expense $10.

JERUSALEM. Population, 1,800.
Rules adopted. One meeting. Examined school houses. Abated three nuisances. Expense $18.

MONCLOVA Population, 1,200.
Rules adopted. Two meetings. No health officer. Examined school houses. Buried dead animals. Expense $10. Two cases typhoid fever.

OREGON. Population, 1,500.
Rules adopted. Three meetings. No health officer. Abated one nuisance. Expense $40.

PROVIDENCE Population, 1,500.
Rules adopted. Three meetings. Have health officer. Examined school houses. Closed seven schools from one to four weeks on account diphtheria. Drained swamps. Expense, $28.30. Twenty-eight cases, five deaths diphtheria.

SPRINGFIELD. Population, 800.
Rules adopted. Two meetings. Clerk acts as health officer. Examined school houses. Closed two schools for a week on account diphtheria. Abated three nuisances. Expense, $10. Two cases, one death diphtheria; one case, one death membranous croup.

MADISON COUNTY.

CANAAN. Population, 1,000.
Rules adopted. Five meetings. Have health officer. Examined school houses. Abated five nuisances. Expense, $53.25. Three cases diphtheria; one case scarlet fever; four cases typhoid fever.

FAIRFIELD. Population, 2,000.
Nothing done.

OAK RUN. Population, 600.
Nothing done.

UNION. Population, 1,700.
No rules. Abated two nuisances. No expense.

MAHONING COUNTY.

BEAVER. Population, 1,000.
Rules adopted. Two meetings. Have health officer. Closed three schools for three weeks on account scarlet fever. Abated one nuisance. Expense, $40. Twenty-two cases, one death scarlet fever.

COITSVILLE. Population not given.
Examined school houses. Closed one school one week on account scarlet fever. Expense, $8.

ELLSWORTH. Population, 700.
Rules adopted. One meeting. Closed two schools three or four weeks on account scarlet fever. One case diphtheria; five cases scarlet fever.

GOSHEN. Population not given.
Rules adopted. Nothing done. Expense, 45 cents.

JACKSON. Population, 200.
No rules. Closed one school two weeks on account scarlet fever. Two cases scarlet fever.

SMITH. Population, 1,200.
Rules adopted. Three meetings. Have health officer. Abated seven nuisances. Expense, $10. Two cases typhoid fever.

SPRINGFIELD. Population, 700.
No rules. One meeting. Abated one nuisance. No expense.

YOUNGSTOWN. Population, 2,250.
Rules adopted. Twelve meetings. Trustees act as health officers. Examined school houses. Closed one school two weeks on account scarlet fever. Abated twenty-five nuisances. Three cases diphtheria; four cases scarlet fever.

MARION COUNTY.

GRAND. Population, 700.
Rules adopted. Five meetings. Examined school houses. Closed one school four weeks on account diphtheria. Expense, $25. Nine cases, four deaths diphtheria; three cases, three deaths membranous croup; two cases scarlet fever.

GREEN CAMP. Population, 600.
No rules. Two meetings. Clerk acts as health officer. Closed three schools one to three weeks on account diphtheria.

Expense, $10. Two cases diphtheria; twenty-two cases, one death typhoid fever; seven cases whooping cough.

MONTGOMERY. Population, 400.
Rules adopted. Twelve meetings. Have health officer. Examined school houses. Closed three schools two weeks on account diphtheria. Expense, $75. Ten cases, two deaths diphtheria; two cases, two deaths membranous croup.

TULLY. Population, 1,150.
Rules adopted. Four meetings. Have health officer. Examined school houses. Closed two schools two weeks on account diphtheria. Expense, $15. Thirty-two cases, six deaths diphtheria; one case, one death membranous croup.

SCOTT. Population, 300.
Nothing done.

WALDO. Population, 1,000.
Nothing done.

MEDINA COUNTY.

CHATHAM. Population, 1,000.
Closed three schools for one and two weeks on account of scarlet fever. Eight cases scarlet fever. Five cases typhoid fever. Fourteen cases whooping cough.

GUILFORD. Population, 1,300.
Rules adopted. Three meetings. Have health officer. Abated three nuisances. Expense, $12.00. Five or six cases scarlet fever.

HINCKLEY. Population, 1,200.
No rules. Nothing done.

LITCHFIELD. Population, 450.
Have health officer. Examined school houses. Abated four nuisances. Expense, $5.00.

LAFAYETTE. Population, 1,150.
Rules adopted. One meeting. Have health officer. Examined school houses. Expense, $6.00. Three cases diphtheria; one case scarlet fever.

SPENCER. Population, not given.
Rules adopted. Nothing done.

WADSWORTH. Population, 6,500.
Rules adopted. No meetings. No health officer.

YORK. Population, 1,000.
No rules. Two meetings. Have health officer. Three schools closed two weeks on account of scarlet fever. Expense, $75.

MEIGS COUNTY.

CHESTER. Population, 1,500.
Rules adopted. Four meetings. Closed one school three weeks on account of diphtheria. Eight cases, two deaths diphtheria. No expense.

COLUMBIA. Population, 1,500.
Rules adopted. One meeting. Have health officer. Nothing done.

LETART. Population, 1,500.
Rules adopted. One meeting. Have health officer. One nuisance abated. Expense, $6.00. Two cases scarlet fever.

SALISBURY. Population, 800.
No rules. No meetings. Examined. No expense.

MERCER COUNTY.

CENTER. Population, 1,200.
Rules adopted. No meetings. Nothing done.

FRANKLIN. Population, 1,400.
Rules adopted. Nothing done.

HOPEWELL. Population, not given.
Rules adopted. One meeting. Have health officer.

MARION. Population, 2,500.
Rules adopted. Two meetings. Expense, $15.00. Three cases, one death diphtheria.

MIAMI COUNTY.

CONCORD. Population, 3,000.
No rules. Four meetings. Expense, $40.00.

MONROE. Population, 2,000.
No rules. Twelve meetings. Have health officer. Expense, $75.00. Two cases typhoid fever.

NEWBERRY. Population, not given.
No rules. Abated twelve nuisances. Expense, $27.18. Six cases diphtheria. Five cases scarlet fever.

NEWTON. Population, 2,000.
Rules adopted. Four meetings. Clerk acts as health officer. Examined school houses. Closed one school two weeks on account of scarlet fever and diphtheria. Expense, $20.00. Five cases, two deaths diphtheria. Two cases scarlet fever. Five cases typhoid fever.

SPRING CREEK. Population, 2,000.
Rules adopted. Four meetings. Have health officer. Closed one school two weeks on account of diphtheria. Abated ten nuisances. Expense, $62.00. Three cases diphtheria.

STAUNTON. Population, not given.
No rules. Twelve meetings. Have health officer. Closed two schools about ten days on account of diphtheria. Abated one nuisance. Expense, $4.50. Four cases diphtheria. One case scarlet fever.

UNION. Population, not given.
Rules adopted. Two meetings. Have three health officers. Examined school houses. Closed five schools ten days on account of diphtheria. Seven cases,

five deaths diphtheria. Two cases scarlet fever. Five cases typhoid fever, three deaths.

WASHINGTON. Population, 1,500.

Rules adopted. Twenty-five meetings. Have health officer. Examined school houses. Closed one school one week on account of diphtheria. Abated six nuisances. Expense, $50.00. Six cases diphtheria.

MONROE COUNTY.

ADAMS. Population, 900.

Rules adopted. Two meetings. Have health officer. Examined school houses. No expense. Six cases diphtheria. Fourteen cases four deaths typhoid fever.

BENTON. Population, 1,000.

Rules adopted. One meeting. No health officer. Expense, $60.

GREEN. Population, 1,500.

Rules adopted. Six meetings. Have health officer. Expense, $10. Twelve cases scarlet fever.

LEE. Population, 1,500.

Rules adopted. One meeting. No health officer. Closed two schools two weeks on account diphtheria. Expense $4.50. Fifteen cases four deaths diphtheria. One case, one death membranous croup; five cases, two deaths typhoid fever.

Ohio. Population, 2,000.

Rules adopted. Two meetings. Expense, $27.65. One case, one death diphtheria; six cases five deaths typhoid fever.

SUMMIT. Population, 350.

Rules adopted. Eight meetings. Health officer. Closed six schools two months an account small-pox. Expense, $60. Fourteen cases one death typhoid fever.

SWITZERLAND. Population, 1,300.

No rules. One meeting. Nothing done.

MONTGOMERY COUNTY.

BUTLER. Population, 2,500.

Rules adopted. Twelve meetings. Examined school-houses. Abated one nuisance. Expense, $50. Eight cases two deaths.

CLAY. Population, 2,000.

Rules adopted. Two meetings. Closed two schools for two and four weeks on account diphtheria. Expense $30. Twelve cases diphtheria; two cases two deaths membranous croup; four cases scarlet fever, twelve cases five deaths typhoid fever.

GERMAN. Population, 3,200.

Rules adopted. Four meetings Have health officer. Abated two nuisances. Expense, $24. Ten cases, two deaths diphtheria; one case typhoid fever.

HARRISON. Population, 3,000.

Rules adopted. Six meetings. Have health officer. Examined schools houses. Abated several nuisances. Expense, $2. Four cases, two deaths diphtheria; one case one death membranous croup; two cases scarlet fever three cases typhoid fever.

JACKSON. Population, 1,575.

Rules adopted. Twelve meetings. Examined school houses. Four nuisances abated. Fifteen cases four cases diphtheria; ten cases two deaths typhoid fever.

MADISON. Population, not given.

Rules adopted. Four meetings. Clerk acts as health officer. Examined school houses. Closed four schools from two to four weeks on account diphtheria. Expense, $58. Fifteen cases, three deaths diphtheria.

MAD RIVER. Population, 2,500.

Rules adopted. Abated two nuisances. No expense.

PERRY. Population, 2,000.

Rules adopted. Two meetings. Abated one nuisance. Expense, $6.00.

WAYNE. Population, 1,250.

Rules adopted. Two meetings. Examined school houses. Closed one school one week on account diphtheria. Expense, $20. Twenty cases, four deaths diphtheria.

MORGAN COUNTY.

BLOOM. Population, 900.

No rules. One meeting. Have health officer. Expense, $4.25.

CENTER. Population, 1,200.

No rules. One meeting. Clerk acts as health officer. Expense, $3.

DEERFIELD. Population 1,000

Rules adopted. One meeting. Abated one nuisance. Expense, $6.00 Two cases diphtheria; one case typhoid fever.

HOMER. Population, 1,600.

No rules. One meeting. Have health officer. Examined school houses. No expense.

MALTO. Population not given.

Rules adopted. Two meetings. Examined school houses. Abated one nuisance. Expense, $1.00. Physicians do not report contagious diseases.

MANCHESTER. Population, 850.

Rules adopted. Two meetings. Have health officer. Closed one school two weeks on account scarlet fever. Two nuisances abated. Expense, $5.00. Seven cases scarlet fever.

MEIGSVILLE. Population, 1,000.

Rules adopted. One meeting. Have health officer. Nothing done.

YORK. Population 1,200.
Rules adopted. Two meetings. Have health officer. Examined school houses. Expense $30.00. Three cases scarlet fever.

MORROW COUNTY

BENNINGTON. Population, not given.
No rules. No meeting. Have health officer. No expense.

CANAAN. Population, 2,000.
No rules. No meetings. Closed one school three weeks on account diphtheria. No expense. Five cases diphtheria.

CONGRESS. Population, 1,200.
No rules. One meeting. Have health officer. Expense, $3. Seven cases, two deaths diphtheria.

GILEAD. Population, 3,000.
No organized board.

MUSKINGUM COUNTY.

ADAMS. Population, 900.
Rules adopted. Have health officer. Closed one school for two weeks on account of scarlet fever. No expense. Eight cases of scarlet fever and two cases of typhoid fever.

CLAY. Population, 400.
Rules adopted. One meeting. No health officer. No expense. No contagious diseases.

FALLS. Population, 1,800.
Rules adopted. Twelve meetings. Have health officer. Closed two schools for one or two weeks on account of scarlet fever. Abated one nuisance. Expense, $30. Eight cases of scarlet fever.

HARRISON. Population, not given.
Rules adopted. One meeting. Have health officer. Nothing done.

MADISON. Population, 1,200.
Rules adopted. Four meetings. Have health officer. Examined school houses. Closed six schools on account of scarlet fever. Abated six nuisances. Expense, $10. One case of diphtheria; one case and one death of membranous croup; twenty-nine cases of scarlet fever; two cases of measles and five cases of whooping cough.

MUSKINGUM. Population, 1,200.
Rules adopted. No health officer. Closed one school for two weeks on account of scarlet fever. No expense.

PERRY. Population, 1,200.
No rules. One meeting. No health officer. Expense, $4.

RICH HILL. Population not given.
Nothing done.

UNION. Population, [illegible].
No rules. One meeting. Have health officer. Expense, $[illegible].

WAYNE. Population, not given.
No organized board.

NOBLE COUNTY.

BEAVER. Population, not given.
No rules. One meeting. Expense, $6. One case and one death of diphtheria.

ELK. Population, 1,000.
Rules adopted. No meetings. Have health officer. No expense.

SENECA. Population, 800.
Nothing done. Have health officer.

STOCK. Population, 2,500.
No rules. Have health officer. Expense, $40.25. One case of diphtheria and fifteen cases of typhoid fever.

WAYNE. Population, 800.
Rules adopted. Five meetings. Have health officer. Examined school houses. Closed four schools one to three weeks on account of diphtheria. Expense, $50. Ten cases and five deaths of diphtheria.

OTTAWA COUNTY.

BAY. Population, 650.
No rules. One meeting. Have health officer. Expense, $4.50.

BENTON. Population, 3,000.
Rules adopted. Four meetings. Have health officer. Three cases of scarlet fever.

CARROLL. Population, not given.
Rules adopted. Twelve meetings. Have health officer. Examined school houses. Expense, $35.

CATAWBA ISLAND. Population, 700.
Rules adopted. Three meetings. Examined school houses. Expense, $13.50.

DANBURY. Population 2,000.
Rules adopted. Six meetings. Clerk acts as health officer. Examined school houses. Closed two schools for two weeks on account of measles. Abated four nuisances. Expense, $15. Nine cases and two deaths of typhoid fever and forty cases of measles.

ERIE. Population, 480.
Nothing done.

PUT-IN BAY. Population, 1,000.
Rules adopted. No meeting. Clerk acts as health officer. Abated one nuisance. No expense.

PAULDING COUNTY.

ANTWERP. Population [illegible].
No rules. No meetings. No health officer. Closed three schools for two weeks on account of diphtheria. No expense. Five cases and two deaths of diphtheria.

[illegible]. Population [illegible].
No rules. One meeting. No health officer. Closed two schools two weeks on account of diphtheria. Six cases and three deaths of diphtheria.

CRANE. Population, 2,000.
No rules. Four meetings. Have health officer. Examined school houses. Closed two schools for two and four weeks on account of diphtheria. Expense, $15. Two cases and one death of diphtheria; two cases of membranous croup; three cases of typhoid fever and five cases of meslaes.

EMERALD. Population, 800.
Rules adopted. Three meetings. Expense, $6. Two cases, one death, diphtheria.

JACKSON. Population, 500.
No rules. No meetings. Examined school houses. Two nuisances abated. Expense, $8.50.

LATTY. Population, 1,500.
Nothing done.

PAULDING. Population not given.
Rules adopted. Monthly meetings. Trustees act as health officer. Examined school houses. Closed one school two weeks on account diphtheria. Abated one nuisance. Expense, $1. Seven cases diphtheria.

WASHINGTON. Population, 2,500.
Nothing done.

PERRY COUNTY.

CLAYTON. Population, 1,600.
No rules. One meeting. No health officer. Abated one nuisance. Expense, $5. Six cases typhoid fever. One death whooping cough.

COAL. Population, 1,000.
Rules adopted. Eight meetings. Have health officer. Examined school houses. One school closed a month on account scarlet fever. Abated seven nuisances. Expense, $113.50. One case, one death, diphtheria; nine cases, one death, scarlet fever.

HARRISON. Population, 1,350.
Rules adopted. Trustees act as health officers. No expenses.

JACKSON. Population not given.
No rules. Two meetings. Have health officer. Examined school houses. Abated two nuisances. Expense, $40. Twenty-seven cases scarlet fever; eighteen cases typhoid fever.

MADISON. Population not given.
Rules adopted. One meeting. Closed one school one week on account scarlet fever. Abated one nuisance. Expense, $10. One case scarlet fever.

MONROE. Population, 2,500.
No rules. Three meetings. Two cases, two deaths, diphtheria.

PLEASANT. Population, 1,300.
No rules. One meeting. Have health officer. Closed one school two weeks on account scarlet fever and whooping cough. Abated nuisance. Expense, $6. Four cases scarlet fever.

PIKE. Population, 2,000.
Rules adopted. Twenty-five meetings. Have health officer. Four nuisances abated. Expense, $87.95. Seven cases, four deaths, diphtheria; twenty-three cases, one death, scarlet fever; twelve cases, three deaths, measles.

SALT LICK. Population, 2,000.
Two meetings. Nothing done.

PICKAWAY COUNTY.

CIRCLEVILLE. Population, 8,500.
Nothing done.

DARBY. Population not given.
Rules adopted. Two meetings. Have health officer. Abated two nuisances. Expense, $25. Two cases, two deaths, diphtheria; one case scarlet fever; forty-three cases, two deaths, typhoid fever.

DEER CREEK. Population, 2,000.
Rules adopted. One meeting. Have health officer. Examined school houses. Closed nine schools a month on account diphtheria. Abated one nuisance. Expense, $115.53. One hundred and twenty-five cases, 13 deaths, diphtheria.

MADISON. Population, 1,000.
No rules. One meeting. Examined school houses. Closed one school one week on account of diphtheria.

PERRY. Population, 2,300.
No rules. Two meetings. No health officer. Closed schools one week on account diphtheria. Expense, $6. Six cases diphtheria.

PICKAWAY. Population, 1,400.
No rules. No meetings. Have health officer. No expenses.

SALT CREEK. Population, 1,400.
Rules adopted. One meeting. Trustees act as health officers. Expense, $25. Two cases, one death, typhoid fever.

SCIOTO. Population, 2,300.
Rules adopted. Twelve meetings. Three health officers. Examined school houses. Closed one school two weeks on account diphtheria. Expense, $34.50. Ten cases diphtheria, eleven cases scarlet fever, one case typhoid fever.

WAYNE. Population, 700.
No rules. One meeting. No health officer. No expense.

BENTON. Population, 1,500.
Nothing done.

MARION. Population, 600.
No rules. One meeting. Have health officer. Abated one nuisance. Expense, $18. One case, one death, diphtheria; one case scarlet fever.

MIFFLIN. Population, 1,000.
Nothing done. Expense, $5. Ten cases, one death, diphtheria; one case measles.

PEE PEE. Population, 600.
No rules. Eleven meetings. Have health officer. Two cases diphtheria, one case scarlet fever.

SCIOTO. Population, 1,200.
No rules. One meeting. Have health officer. Abated one nuisance. Expense, $3. One hundred and twenty-five cases, two deaths, diphtheria; four cases, four deaths, membranous croup; forty cases, two deaths, typhoid fever.

PREBLE COUNTY.

DIXON. Population, 1,000.
Nothing done. Three cases, one death, scarlet fever; six cases, two deaths, typhoid fever.

ISRAEL. Population not given.
Nothing done.

JACKSON. Population, 800.
No rules. Twelve meetings. No health officer. Examined school houses. No expenses. Seven cases, four deaths, diphtheria; fifteen cases, one death, typhoid fever.

JEFFERSON. Population, 1,000.
Rules adopted. One meeting. No health officer.

LANIER. Population, not given.
Rules adopted. Twelve meetings. Have health officer. Examined school houses. Abated two nuisances. Expense, $19. Three cases, three deaths, diphtheria; one case, one death, membranous croup; five cases typhoid fever; three cases whooping cough.

WASHINGTON. Population, 1,800.
No rules. One meeting. Have health officer. Expense, $4.50.

PORTAGE COUNTY.

ATWATER. Population, 1,400.
Rules adopted. Four meetings. Have health officer. Examined school houses. No expense. Four cases scarlet fever.

CHARLESTOWN. Population, 700.
Rules adopted. One meeting. Abated two nuisances.

DEERFIELD. Population, 1,000.
Nothing done.

EDINBURG. Population, 750.
No rules. Twelve meetings. Have health officer. Expense, $10. One case scarlet fever; two cases of measles; one case whooping cough.

HIRAM. Population, 875.
No rules. No meetings. Abated one nuisance.

NELSON. Population, 850.
Nothing done.

PALMYRA. Population, 1,000.
Nothing done. One case diphtheria; nineteen cases measles.

PARIS. Population, 180.
Nothing done.

RAVENNA. Population, not given.
Rules adopted. One meeting. Have health officer. Abated one nuisance. Expense, $10.50. One case scarlet fever, one case typhoid fever.

STREETSBORO. Population, 800.
Examined school houses. No expense.

SUFFIELD. Population, not given.
Two meetings. Have health officer. Examined school houses. Abated one nuisance. Expense, $4.50. Four cases scarlet fever; one case typhoid fever.

PUTNAM COUNTY.

BLANCHARD. Population, 1,500.
Rules adopted. Have health officer. No expense.

JACKSON. Population, 4,000.
Rules adopted. No meetings. Have health officer. Abated one nuisance. Expense, $13.50.

LIBERTY. Population, 1,575.
No rules. Twelve meetings. Examined school houses.

OTTAWA. Population, not given.
No organized board of health.

PERRY. Population, 1,500.
Nothing done.

RILEY. Population, 1,050.
Nothing done.

UNION. Population, 1,850.
Rules adopted. Nothing done.

RICHLAND COUNTY.

BLOOMING GROVE. Population, 1,000.
Rules adopted. One meeting. Expense, $50. Fourteen cases, two deaths diphtheria; one case, one death, membranous croup.

BUTLER, Population, 700.
Rules adopted. One meeting. Have health officer. Closed school one week on account of scarlet fever. Expense, $4.50. Three cases scarlet fever.

CASS. Population, 1,900.
No rules. Twelve meetings. Examined school houses.

MADISON. Population, 3,000.
Eighteen meetings. Trustees act as health officers. Examined school houses. Closed one school two weeks on account diphtheria. Twenty nuisances abated. Expense, $80. Forty cases [illegible] diphtheria; ten [illegible] fever; nine [illegible]

MONROE. Population, 1,500.
Rules adopted. Six meetings. Have health officer. Expense, $208.29. Six cases, four deaths diphtheria. Two cases typhoid fever.

PLYMOUTH. Population, not given.
Nothing done.

SANDUSKY. Population, 325.
Rules adopted. One meeting. No expense. One case, one death typhoid fever.

SHARON. Population, not given.
Rules adopted. Twelve meetings. Clerk acts as health officer. One nuisance abated. No expense. One case, one death diphtheria.

WASHINGTON. Population, 1,000.
No rules. One meeting. Clerk acts as health officer. Closed one school two days on account diphtheria. One case scarlet fever, two cases, two deaths typhoid fever.

WELLER. Population, 1,100.
Rules adopted. One meeting. Have health officer. Expense, $60.50. One case diphtheria, three cases scarlet fever.

ROSS COUNTY.

BUCKSKIN. Population, 2,000.
Rules adopted. Six meetings. Have health officer. Closed two schools one week on account scarlet fever. Expense, $10. Two cases membranous croup; six cases, one death scarlet fever; one case typhoid fever.

COLERAIN. Population, 1,700.
No rules. One meeting. Nothing done.

DEERFIELD. Population, 1,000.
No rules. Nine meetings. Have health officer. Examined school houses. Abated several nuisances. Expense, $75. Four cases diphtheria; forty-two cases measles.

FRANKLIN. Population, 1,200.
No rules. No meetings. Closed two schools for two and three weeks on account measles. Expense, $2.00.

LIBERTY. Population, 1,600.
Rules adopted. Four meetings. Closed one school on account scarlet fever. Expense, $31.50. Two cases, one death diphtheria; two cases scarlet fever.

PAINT. Population, 1,600.
Closed one school two weeks on account diphtheria. Three cases diphtheria.

PAXTON. Population, 3,000.
Nothing done.

UNION. Population, 1,900.
No rules. Eight meetings. Have [illegible]alth officer. No expense. One death [illegible]d fever.

SCIOTO COUNTY.

CLAY. Population, 2,100.
Rules adopted. Four meetings. Have health officer. Closed two schools ten to fifteen days on account of diphtheria. Abated eight nuisances. Expense, $135.26. Thirty cases, six deaths, diphtheria.

GREEN. Population, 1,200.
Rules adopted. Closed three schools one to three weeks on account of diphtheria. Expense, $50.50. Twenty-eight cases, two deaths, diphtheria.

JEFFERSON. Population, 1,500.
No rules. One meeting. Have health officer. Fifteen cases, three deaths, diphtheria; three cases, two deaths, typhoid fever.

MORGAN. Population, 1,500.
Rules adopted. Have health officer. No expense. Four cases diphtheria; one case membranous croup; seven cases typhoid fever; twenty cases measles.

NILE. Population, 2,100.
Rules adopted. Four meetings. Closed two schools nine days on account of diphtheria. Expense, $85.05. Thirty-four cases, three deaths, diphtheria.

PORTER. Population, 2,000.
Rules adopted. Four meetings. Closed three schools on account of diphtheria. Expense, $35.00. Fifty-five cases, eight deaths, diphtheria.

RUSH. Population, 800.
Rules adopted. One meeting. No health officer. Closed two schools two weeks on account of diphtheria.

VALLEY. Population, 1,200.
Rules adopted. Four meetings. Have health officer. Closed one school three weeks on account of diphtheria. Abated forty-eight nuisances. Expense. $25. Sixty-three cases, three deaths, diphtheria; eight cases scarlet fever.

VERNON. Population, 700.
No organized board.

WASHINGTON. Population, 1,100.
No rules. Four meetings. No health officer. Closed two schools two weeks on account of diphtheria. Expense, $20.50. Eight cases, three deaths diphtheria; one case, one death membranous croup; two cases, one death typhoid fever; three cases measles, four cases whooping cough.

SENECA COUNTY.

ADAMS. Population, 1,200.
No rules. No meetings. Examined school houses. No expense.

BIG SPRING. Population, 1,964.
Rules adopted. One meeting. Two cases diphtheria; four cases scarlet fever.

REED. Population, 800.
Nothing done.

THOMPSON. Population, 1,600.
No rules. Three meetings. Closed two schools one week on account of measles. Four cases, one death diphtheria; one case scarlet fever; one case typhoid fever.

VENICE. Population, 1,600.
Rules adopted. One meeting. Have health officer. No expense.

SHELBY COUNTY.

MCLEAN. Population, 400.
No rules. Four meetings. No health officer. Examined school houses. Closed one school six days on account of diphtheria. Expense, $61. Twenty-four cases, four deaths diphtheria.

ORANGE. Population, 600.
Rules adopted. Two meetings. Have health officer. Examined school houses. Closed one school six days on account of diphtheria. Expense, $15. Seven cases diphtheria.

PERRY. Population, 1,500.
Nothing done.

VAN BUREN. Population, 1,000.
Rules adopted. One meeting. Have health officer. Fourteen cases, four deaths diphtheria; two cases, one death membranous croup; sixteen cases, one death typhoid fever; one hundred and twenty-eight cases whooping cough.

STARK COUNTY.

CANTON. Population, 2,500.
No rules. Eleven meetings. Have health officer. Closed two schools four or five days on account of diphtheria and scarlet fever. Abated six nuisances. Expense, $271.50. Four cases, one death diphtheria; one case, one death membranous croup; two cases scarlet fever.

JACKSON. Population, 2,500.
Rules adopted. Four meetings. Have health officer. Expense, $25. Six cases, one death diphtheria; one case typhoid fever; one case, one death whooping cough.

LAKE. Population, 2,300.
Nothing done. Two cases diphtheria.

LEXINGTON. Population not given.
Rules adopted. One meeting. Have health officer. Closed one school two weeks on account of diphtheria. Abated three or four nuisances. Expense, $150. Six cases, three deaths diphtheria; one case typhoid fever.

OSNABURG. Population, 1,500.
Rules adopted. Four meetings. Have health officer. Expense, $20. One case, one death membranous croup; one death typhoid fever.

PIKE. Population, 2,000.
No rules. One meeting. Have health officer. Expense, $15. One case typhoid fever.

SANDY. Population, 800.
Rules adopted. One meeting. Have health officer. Examined school houses. Expense, $16.50. Four cases typhoid fever.

SUGAR CREEK. Population, 1,100.
Rules adopted. Four meetings. Have health officer. Examined school houses. No expense. Three cases membranous croup; nine cases scarlet fever; five cases typhoid fever; forty cases measles; twenty-eight cases whooping cough.

WASHINGTON. Population, 1,200.
No rules. Three meetings. Have health officer. Expense, $25. One case, one death diphtheria.

SUMMIT COUNTY.

BOSTON. Population not given.
Rules adopted. Two meetings. No health officer. Examined school houses. Two cases diphtheria.

HUDSON. Population, 1,500.
Rules adopted. Twelve meetings. Examined school houses. No expense.

NORTHAMPTON. Population, 600.
Nothing done. Two cases typhoid fever and one case measles.

NORTHFIELD. Population, 1,000.
Rules adopted. Nothing done. One case scarlet fever. No expense.

NORTON. Population not given.
Rules adopted. Two meetings. No health officer. Closed three schools from two to six weeks on account of diphtheria. Expense $40. Thirty cases and two deaths of diphtheria; one case and one death of membranous croup.

PORTAGE. Population, 3,000.
No rules. Seven meetings. Have health officer. Examined one school house. Abated two nuisances. Expense $75.10. Two cases diphtheria.

RICHFIELD. Population, 850.
Rules adopted. No meetings. No health officer. Examined school houses. Closed one school two weeks on account of diphtheria. Four cases typhoid fever. No expense.

SPRINGFIELD. Population, 2,000.
No rules. Two meetings. Have health officer. Abated one nuisance. Expense, $10.50. Two cases scarlet fever.

TRUMBULL COUNTY.

BRACEVILLE. Population, 900.
Nothing done.

BRISTOL. Population, 1,400.
Rules adopted. Three meetings. Have health officer. Examined school houses.

Closed one school one week on account of diphtheria. Expense, $50. One case, one death, diphtheria.

BROOKFIELD. Population not given.
No rules. Two meetings. Clerk acts as health officer. Abated one nuisance. Expense, $5.

CHAMPION. Population, 1,300.
Nothing done.

FARMINGTON. Population, 1,000.
No rules. Two meetings. Clerk acts as health officer. Examined school houses. Abated three nuisances. Expense, $5.

FOWLER. Population, 800.
Rules adopted. One meeting. Nothing done.

LIBERTY. Population not given.
Rules adopted. Four meetings. Have health officer. Abated two nuisances. Expense, $100. Two cases scarlet fever; three cases of typhoid fever.

LORDSTOWN. Population, 800.
No rules. One meeting. One school closed four weeks on account of scarlet fever. One case of scarlet fever.

MECCA. Population, 450.
Rules adopted. One meeting. Have health officer. Examined school houses.

NEWTON. Population, 700.
No rules. One meeting. No health officer. Nothing done.

WARREN. Population not given.
Rules adopted. Five meetings. No health officer. Examined school houses. Abated two nuisances. Expense, $8.

TUSCARAWAS COUNTY.

AUBURN. Population, 375.
Nothing done.

FAIRFIELD. Population, 1,500.
No rules. Two meetings. Trustees act as health officer. Examined school houses. No expense.

FRANKLIN. Population, 600.
Nothing done. Two cases of typhoid fever; fifteen cases measles; twenty cases of whooping. cough

GOSHEN. Population, 2,000.
Rules adopted. Twelve meetings. Have health officer. Abated fifteen nuisances. Expense, $52.

JEFFERSON. Population not given.
Nothing done. Have health officer.

LAWRENCE. Population, 2,000.
Rules adopted. Twelve meetings. Nothing done. Expense, $5.

MILL. Population, 4,000.
No rules. Three meetings. Closed one school two weeks on account of scarlet fever. Expense $10.

SALEM. Population not given.
No rules. No meeting. Have health officer Closed the schools five weeks on account of diphtheria. No expense. Seventeen cases, one death of diptheria, three cases of typhoid fever.

WARWICK. Population, 1,500.
No rules. One meeting. Clerk acts as health officer. Expense, $20. Ten cases one death, diphtheria; three cases, three deaths, membranous croup; six cases of scarlet fever; four cases, measles; twenty-one cases whooping cough.

WAYNE. Population not given.
Rules adopted. Have health officer. Closed one school two weeks on account diphtheria. Fifteen cases, two deaths, diphtheria.

UNION COUNTY.

CLAIBORNE. Population, 3,000.
No rules. One meeting. Abated one nuisance. Expense, $14.35. Three cases diphtheria. One death, scarlet fever.

DOVER. Population, 1,100.
No rules. One meeting. No health officer. Three cases, scarlet fever; six cases, one death typhoid fever.

JACKSON. Population, 1,000.
No rules. Twelve meetings. Have health officer. Abated one nuisance. Expense, $6. Five cases, one death, diphtheria; one case, one death, membranous croup.

JEROME. Population, 1,400.
Rules adopted. Four meetings. Clerk acts as health officer. Expense, $15.75. Ten cases scarlet fever; three cases typhoid fever; three cases measles.

UNION. Population, 2,675.
No rules. Have health officer. Closed three schools about two weeks on account scarlet fever and diphtheria. Expense, $15.00. Two cases, two deaths, membranous croup; two cases scarlet fever; two cases typhoid fever.

YORK. Population, 1,600.
Nothing done.

VAN WERT COUNTY.

JENNINGS. Population, 2,000.
Rules adopted. Three meetings. No health officer. Closed one school two weeks on account diphtheria. Expense, $10.00. Four cases, two deaths, diphtheria.

LIBERTY, Population, 400.
Rules adopted. Eight meetings. Have health officer. Expense, $25.00.

WASHINGTON. Population, 2,500.
No rules. Six meetings. Have health officer. Examined school houses. Closed three schools two weeks on account diphtheria. Abated four nuisances. Expense, $26.50. Eleven cases diphtheria; five cases, one death, typhoid fever.

VINTON COUNTY.

BROWN. Population, not given.
No rules. One meeting. No health officer. Abated one nuisance. Expense, $6.00. Seven cases diphtheria; ten cases, three deaths, typhoid fever.

CLINTON. Population, 2,000.
No rules. Four meetings. Examined school houses. Abated one nuisance. Expense, $5.00. Four cases diphtheria; one case, one death, membranous croup; two cases scarlet fever; one case typhoid fever; ten cases whooping cough.

EAGLE. Population, 1,000.
Rules adopted. Nothing done.

ELK. Population, 2,500.
Nothing done.

HARRISON. Population, not given.
No rules. Two meetings. Have health officer. Closed eight schools two weeks on account diphtheria. Expense, $31.50. Four cases diphtheria; one case scarlet fever.

JACKSON. Population, 1,000.
Rules adopted. One meeting. Clerk acts as health officer. Expense, $7.50. Two cases, two deaths, membranous croup; one death, whooping cough.

RICHLAND. Population, 100.
No rules. No meetings. Closed three schools three weeks on account diphtheria in another township. No expense.

VINTON. Population, 1,500.
Rules adopted Four meetings. Clerk acts as health officer. Closed three schools two to four weeks on account diphtheria. Abated four nuisances. Expense, $30.00. Twenty cases, five deaths, diphtheria; six cases, one death, membranous croup; six cases typhoid fever; thirty-five cases whooping cough.

WILKESVILLE. Population, 2,000.
No rules. Two meetings. Have health officer. Closed three schools ten days on account diphtheria. Abated two nuisances. Sixteen cases, four deaths, diphtheria; one case, one death, membranous croup; one case typhoid fever.

WARREN COUNTY.

CLEAR CREEK. Population, 2,900.
Rules adopted. Two meetings. No health officer. Closed three schools two and four weeks on account diphtheria.

HAMILTON. Population, 2,500.
Rules adopted. Twelve meetings. No health officer. Closed one school two weeks on account diphtheria. Five cases diphtheria.

HARLEM. Population, not given.
No rules. One meeting. No health officer. Closed one school two weeks on account diphtheria. No expense. One case diphtheria.

MASSIE. Population, 800.
Rules adopted. One meeting. Have health officer. Nothing done.

SALEM. Population, not given.
Rules adopted. Clerk acts as health officer. Nothing done.

WASHINGTON. Population, 1,250.
No rules. No meetings. No health officer. Closed one school on account diphtheria. Abated one nuisance. Expense, $5.00.

WASHINGTON COUNTY.

ADAMS. Population, 1,200.
No rules. No meetings. No health officer. No expense.

AURELIUS. Population, 1,200.
No rules. Six meetings. Nothing done.

DUNHAM. Population, 1,200.
No rules. Nothing done.

GRAND VIEW. Population, 3,000
Rules adopted. Four meetings. Examined school houses. Abated one nuisance. Two cases, two deaths diphtheria.

LIBERTY. Population, 600.
No rules. No meetings. Closed one school one week on account measles. No expense. Physicians do not report.

LUDLOW. Population, not given.
Nothing done.

MARIETTA. Population, not given.
Rules adopted. Examined school houses. No expense.

MUSKINGUM. Population, 1,300.
No rules. Have health officer. Expense, $20.

WARREN. Population not given.
Nothing done. Seven cases, one death typhoid fever.

WATERFORD. Population, 1,600.
No organization as a board of health.

WATERTOWN. Population, 1,600.
Rules adopted. No meetings. No health officer. No expense.

WAYNE COUNTY.

CHESTER. Population, 1,800.
Rules adopted. Four meetings. Have health officer. Examined school houses. Expense, $166.15.

CHIPPEWA. Population, 3,000.
Rules adopted. One meeting. Have health officer. Examined school houses. No expense. One case scarlet fever, one case, one death typhoid fever.

CLINTON. Population, 1,300.
Rules adopted. Two meetings. Expense, $10.

EAST UNION. Population not given.
No rules. Twelve meetings. No health officer. Examined school houses. Five cases, one death typhoid fever; fifty cases whooping cough.

FRANKLIN. Population, 1,400.
Rules adopted. Two meetings. Have health officer. Closed one school one week on account measles. Expense, $5.00. Six cases measles.

PAINT. Population, 2,000.
Rules adopted. One meeting. No health officer. Expense, $2.00. One case diphtheria.

PLAIN. Population, 1,800.
Rules adopted. Two meetings. Have health officer. Expense, $75.

WOOSTER. Population not given.
No rules. Nothing done. Ten cases, two deaths typhoid fever.

WILLIAMS COUNTY.

BRIDGEWATER. Population, 1,000.
No rules. No meetings. No health officer. Examined school houses. No expense.

CENTER. Population, 1,000.
No rules. Nine meetings. No health officer. Closed school two weeks on account diphtheria. Abated two nuisances. No expense. One case diphtheria; two cases scarlet fever; two deaths typhoid fever.

FLORENCE. Population not given.
Rules adopted. Nothing done.

SPRINGFIELD. Population, 1,800.
Rules adopted. Have health officer. One case diphtheria. No expense.

WOOD COUNTY.

HENRY. Population, 7,000.
Rules adopted. No meetings. No health officer. Buried dead animals. No expense.

LIBERTY. Population, 3,000.
No rules. Three meetings. Have no health officer. Closed three schools four weeks on account of diphtheria. Abated several nuisances. Expense, $25. Four cases, one death, diphtheria.

MILTON. Population, 2,000.
Rules adopted. One meeting. Clerk acts as health officer. Closed one school one week on account of diphtheria. Buried dead animals. Expense, $1. Two cases diphtheria; one case, one death, membranous croup; one case scarlet fever; seven cases, two deaths, typhoid fever.

MONTGOMERY. Population, 1897.
Seven meetings. Trustees act as health officer. Expense, $30. Six cases, one death, diphtheria; one case, one death, membranous croup; two cases scarlet fever; five cases typhoid fever.

PERRYSBURG. Population, 2,500.
Rules adopted. Ten meetings. No health officer. Abated three nuisances. Expense, $4.50.

PORTAGE. Population not given.
No rules. Twelve meetings. No health officer. Closed two schools two weeks on account of scarlet fever. No expense. One case, one death, diphtheria; two cases scarlet fever.

ROSS. Population, 600.
Rules adopted. Three meetings. No health officer. Examined school houses. No expense.

WASHINGTON. Population, 1,000.
One meeting. Have no health officer. Examined school houses. No expense. Three cases, scarlet fever; eleven cases measles.

WEBSTER. Population, 1,575.
Nothing done.

WESTON. Population, 1,400.
Rules adopted. One meeting. Clerk acts as health officer. Abated one nuisance. Expense $10.

WYANDOT COUNTY.

ANTRIM. Population, 1,700.
Nothing done.

CRANE. Population, 1,400.
Rules adopted. Twelve meetings. Have health officer. Expense, $29.26. Two cases, diphtheria; one case, scarlet fever.

JACKSON. Population, 2,000.
Rules adopted. Two meetings. No health officer. Examined school houses. Closed two schools two weeks on account of scarlet fever. Expense, $10. Four cases, diphtheria; five cases scarlet fever; four cases, one death, typhoid fever. No cases whooping cough.

TYMOCHTEE. Population, 2,000.
Rules adopted. Three meetings. Clerk acts as health officer. Four nuisances abated. Expense, $38.59. One case, scarlet fever; one case, typhoid fever.

SYCAMORE. Population, 1,000.
Rules adopted. One meeting. Have no health officer. Expense, $30.

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OF THE

Ohio State Board of Health,

January 1, 1897.

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Indiana—
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- Rules of the State Board of Health.
- Protection of Fruit from Dust Pollution.

Ontario—
- Amendments to Public Health Act.
- Rules for Checking Spread of Infectious Diseases.

Pennsylvania—
- Prevention of Blindness.
- List of Boards of Health.

Wisconsin—
- Amendments to Rules.

List of Cities and Villages having Boards of Health with name of Health Officer.

August 1, 1897.

[illegible]

[illegible]	Dr. E. S. Underwood
[illegible]	Dr. P. V. Tucker
[illegible]	Dr. L. T. Boone
[illegible]	Dr. T. A. Dougherty
[illegible]	Dr. J. F. Marchant
[illegible]	Dr. E. F. Tuttle
[illegible]	Dr. J. M. Thurlow
[illegible]	Mr. [illegible] F. Tolbert
[illegible]	Dr. J. L. Hess
[illegible]	Dr. J. B. Schneider
[illegible]	Dr. L. G. Bonner
[illegible]	Dr. P. H. Aldrich
[illegible]	Dr. B. M. Symmes
[illegible]	Dr. L. B. Ogden
[illegible]	Dr. O. C. Vermilya
[illegible]	Mr. Amos Beardsley
[illegible]	Mr. J. O. Hess
[illegible]	Mr. A. Bricker
[illegible]	Dr. J. T. Hanson
[illegible]	Dr. C. N. Nolan
[illegible]	Dr. J. S. H. Potter
[illegible]	Dr. Gilman R. Davis
[illegible]	Mr. C. J. Griffith
[illegible]	Dr. F. P. Stukey
[illegible]	Dr. L. F. Laudick
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Trimble.....Dr. H. D. Danford
Trimway .....Mr. Leroy Rose
Tuscarawas. .....Dr. C. D. Kurtz
Union City (Ind.) .....Mr. O. J. Wise
Uniontown (Fullerton P. O.) .....
Unionville.....
Unionville Center.....
Uhrichsville.....Dr. Jas. A. McCollom
Utica.....Dr G. W. Garrison
Upper Sandusky.....Dr. O. C. Stutz
Van Buren.....
Vandalia .....Dr. W. H. Riley
Vanlue .....Dr. Jas. L. Schrotz
Van Wert.....Dr. E. L. Wilkinson
Vermillion.....Mr. Henry Schmall
Versailles .....Dr. W. H. Rike
Vinton .....Mr. Robert B. Carter
Wadsworth .....Dr. J. F. Detweiler
Waldo.....Dr. J. R. Hipple

Wapakoneta .....Mr. A. Kahler
Warsaw.....Mr. S. W. Willis
Washington .....Mr. T. W. Hyde
Washingtonville.....Dr. J. C. Gorsuch
Waterloo .....
Waterville.....Dr. Samuel Downs
Wauseon .....Mr. Alfred R. Hill
Waverly.. .....Mr. George D. Emmitt
Waynesburg.....Dr. E. G. McCormick
Waynesfield ... .Dr. Silas McPherson
Waynesville .....Dr. W. E. Oglesbee
Webster.....Mr. J. F. Byrd
Wellington.....Mr. M. W. Lang
West Alexandria.....Mr. L. J. Ashworth
West Cairo .....Dr. G. W. Henderson
West Carrollton .....Mr. Jas. B. Manly
West Chester .....
West Elkton.....Dr. Elwood Holaday
Westerville.....Mr. James D. Budd
Western Star .....Mr. P. A. Johnson
West Jefferson.....Dr. W. E. Postle
West Leipsic .....
West Liberty .....Dr. R. M. Fulwider
West Manchester .....Mr. David Allen
West Mansfield.....Mr. M. Bozeman
West Middleburg .....
West Mill Grove.....
West Milton.....Dr. Gainor Jennings
West Salem .....Dr. D. W. Carver
Weston.....Dr. G. B. Spencer
West Union .....Dr. W. R. Coleman
West Unity.....Mr. J. H. Tiddler
West Wheeling.....
Wheelersburg .....
Whitehouse .....Dr. C. H. Ellis
Wilkesville.....Dr. E. M. Dixon
Williamsburg (Batesville P. O.) .....
Williamsport .....Dr. G. C. Hayes
Windham.....Mr. H. J. Higby
Willoughby .....Dr. Geo. B. Burban
Willshire .....Dr. J. F. Shaffner
Wilmington .....Dr. G. M. Austin
Winchester .....Dr. C. W. Salisbury
Winton Place.....Mr. John R. Froome
Woodsfield .....Mr. A. S. Baker
Woodstock .....Mr. D. P. Smith
Woodville .....Mr. Samuel Crawford
Worthington .....Dr. D. H. Welling
Wyoming .....Mr. A. M. Van Dyke
Yellow Springs .....Dr. W. M. Haffner
York .....
Zanesfield .....
Zaleski.....Dr. F. M. Smallwood
Zoar .....Dr. Clemens Breil

Report of Infectious Diseases

From Health Officers,

For the Year Ending January 2, 1897.

REPORT OF INFECTIOUS DISEASES FROM HEALTH OFFICERS, FOR THIRTEEN WEEKS ENDING MARCH 28, 1896.

In Towns.	Diphtheria and membranous croup		Scarlet fever		Typhoid fever		Whooping cough		Measles.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Aberdeen									84	
Ashburnham	33		20	1						
Ashville			3							
Beach City									33	
Belaire	2		6		1					
Belefontaine	1		3		2		12			
Belerue									1	
Belerue	5	3								
Blakes Mills	1									
Blatchester			1		2	1			5	
Boxmeadow						1				
Brial	1	1								
Burrows	1	2							10	
Byerue			1							
Cambridge	1		5				8	2	144	5
Camden			4							
Canfield	1	1	5							
Carthage			3							
Chapin Farm	1	1								
Cincinnati	1	1	3		2	3			484	3
Cincinnati	140	41	121	7	344	71	24	9	1,750	57
Circleville			5		1	1				
Cleveland	14	57	82	7	96	21	57	5	300	
Clyde			4							
Columbus	9	11	41	2	4	4	2	2		
Columbus Junction			2		1					
Conneaut							30		1	
Copley			1							
Coshocton	1									
Delaware			1							
Delphos					2	1			4	
Delphos		2	2							
East Cleveland	4	2			12		2			
East Palestine	2	1			1					
East Toledo	2	2							1	
Fairfield	5		6		4				57	1
Fostoria			2							
Fremont			1		1					
Galion			3							
Girard			2							
Green Springs							2		2	1
Hamilton	1									
Harrisburg			1							
Hartwell			5							
Ironton	7	1	1						53	
Jefferson									1	
Kent			1							
Lebanon	2		4						17	
Leetonia	2	1	5		2					
Lima	1		12						5	
Lockland	4		3		2	1				
Lorain					45	1				
Loudonville							2			
Madison			5		1					
Malinta	3		2		1				35	
Martin's Ferry					2		4			
Medina	1		5	2	2					
Milford			1							
Mineola			1		1					
Mt. Vernon	1				7				46	
Mineral City							30			
Newark					1				50	
Newcomerstown			9	2						
New Concord				1						
New Philadelphia	3								1	
New Straitsville									1	
Newton Falls										
Niles										
North Baltimore										
Norwalk	2									
Norwood										

REPORT OF INFECTIOUS DISEASES FROM HEALTH OFFICERS, FOR THIRTEEN WEEKS ENDING MARCH 28, 1896—Concluded.

Towns.	Diphtheria and mem. croup.		Scarlet fever.		Typhoid fever.		Whooping cough.		Measles.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Osgood			3							
Pleasant Hill			3							
Ravenna			12							
Reading	19	5			1					
Rock Creek			1							
Roscoe			1							
Salem					1					
Shelby									1	
Springfield	6	3	16	1	1	1			1	
St. Bernard	2	1			7				8	
Summerfield					1	1			4	
Tuscarawas			3							
Uhrichsville	6	1	14		1		6			
Warren	2	1	6							
Washington C. H.	3	3								
Wellston			2							
Wellsville	2				4	1				
Westboro	1		2						6	
West Cairo			3						5	
Windham									4	4
Woodstock			2							
Wyoming	1		7							
Youngstown	12	3	51	4	15	1			2	
Totals	481	145	574	24	581	121	249	18	3,102	71

REPORT OF INFECTIOUS DISEASES FROM HEALTH OFFICERS, FOR THIRTEEN WEEKS ENDING JUNE 2[illegible] 1900.

	Diphtheria and Croup		Scarlet Fever		Typhoid Fever		Whooping Cough		Measles	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
[illegible]										
[illegible]										
[illegible]									

REPORT OF INFECTIOUS DISEASES FROM HEALTH OFFICERS, FOR FOURTEEN WEEKS ENDING OCTOBER 3, 1896.

101 Towns.	Diphtheria and mem. croup.		Scarlet fever.		Typhoid fever.		Whooping cough.		Measles.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths	Cases.	Deaths.	Cases.	Deaths.
Akron	4		7		5	1	4		3	
Ashley					1					
Ashtabula			12							
Athens	1		15							
Bedford			1		1					
Bellaire	2		3				3			
Bellefontaine	9		1		8	2				
Bloomingburg					1					
Brooklyn			1							
Bryan	1		1		1		3			
Bucyrus	7	1	1		4					
Byesville			35	1	7	1				
Cambridge			1							
Carthage	1									
Chagrin Falls					3					
Chillicothe	26	1								
Cincinnati	147	44	75	4	97	29	27	7	30	2
Circleville	2	1	3		15	2				
Clarington					2					
Cleveland	127	34	41	1	66	46	67	16	128	4
Clyde			2		8	2				
Columbus	33	3	33		15	13	3	3		
Conneaut			45	2	12	1			1	
Coshocton			2		4	1				
De Graff			4		12	1				
Delaware			1							
East Liverpool	17	4			2					
East Palestine			1		6	2				
Elmwood Place					1	1				
Findlay	7	1	6		11	4			3	
Fostoria	7	2	4		10	1				
Franklin	16	8	1							
Fredericktown			6	1						
Fremont	1				16	2				
Geneva			1							
Gibsonburg	1	1			16	2				
Greenfield			7							
Green Spring					2					
Gore	2		1		1					
Groveport	1	1								
Grover Hill	15	1								
Hartwell	2									
Hayesville					11	1	1			
Holgate			1							
Ironton	42	4	1							
Laura					1					
Lebanon	1		2		2					
Leetonia			1		8					
Lima	2		15						8	
Lockland	5	2			1					
Logan	1		4							
Lorain	9	1			2		5			
Lynchburg					2					
Mansfield	9	1	4		26	4				
Marseilles					6					
Marysville	27	1	5		1					
McConnelsville					2					
Middletown	1									
Milford			2							
Mineral Ridge	1	1			3	1				
Marristown					7					
Mount Vernon			5	1						
Murray City					12	1	4			
Napoleon					1					
Nelsonville	2		2		1					
Nevada					3	1				
Newark	10	1	23						1	
New Concord			1		1					
New Lisbon			3							
New Philadelphia	1	1								
New Straitsville			10		2					

REPORT OF INFECTIOUS DISEASES FROM HEALTH OFFICERS FOR FOURTEEN WEEKS ENDING OCTOBER 3, 1896—Concluded.

Towns	Diphtheria and membranous croup		Scarlet fever		Typhoid fever		Whooping cough		Measles	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Niles	25	2	1							
Norwood	1		1							
Palmyra			2		1					
Perrysburg	11	4	2	1	1	1				
Piketon	4	1	2		2		3		7	
Plain	2	1	2		14	1				
Plainville			2							
Plymouth	1	1								
Port Clinton	24	12	4		12	2			1	
Portsmouth			1		2				7	
Pulaski	1									
Put-in-Bay					1		5		4	
Quaker Bridge					2					1
Ravenna	1		1						1	
Rockford	2				1	1			1	1
Rossford	1									
Rushsylvania			1		2				2	
Salem			2							
Sandusky	3		25	1	25	2	3		1	
Zanesville	1		1	1	2					
Total	782	142	552	17	565	136	155	30	204	7

REPORT OF INFECTIOUS DISEASES FROM HEALTH OFFICERS, FOR THIRTEEN WEEKS ENDING JANUARY 2, 1897.

136 Towns.	Diphtheria and mem. croup.		Scarlet fever.		Typhoid fever.		Whooping cough.		Measles.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Addystown	2									
Akron	11	3	5		1				1	
Archbald	8									
Ashley					3					
Ashtabula	4		4							
Ashville			2							
Athens			5							
Avon	11	2								
Bedford			3							
Bellaire	16	2	4	1	5				3	
Bellefontaine	29	7	3							
Belleville	3	1								
Bethel			1		1	1				
Bloomingburg					4					
Bowling Green	1				9	3				
Brooklyn	4	1								
Bryan			7		1					
Bucyrus	49	7	2		5		1			
Byesville	19	9	23	1	2					
Caledonia	1	1			1					
Cambridge	23	5	2						2	
Cannelville	4	1								
Carlisle	2				1					
Carthage	23	2								
Castalia	2	2								
Catawba	7	1								
Chagrin Falls	9				1					
Chillicothe	34	2								
Cincinnati	252	69	98	3	110	37	13	2	5	
Circleville	2		2		6					
Clarington	1		1						9	
Cleveland	412	130	110		52	26	15	6	33	1
Cleves	1									
Clyde					4	1				
Columbus	70	17	63		33	17			2	
Conneaut	1		4		2					
Copley									6	
Coshocton	4	1	4							
Cridersville			2							
Cumberland					1		1			
Cuyahoga Falls			1							
De Graff			11	1	1					
Delaware	14	8	3						1	
Delhi	4									
Delphos	5	2								
Dennison	7	2								
Doylestown	2									
East Liverpool	39	7			15	2				
East Palestine	6	2	9		1					
Elmore	3						2			
Elmwood Place	9	4			1				1	
Fairview	4	1								
Felicity	2									
Findlay	57	11	25	1	1	1				
Fostoria	12	1	6		5					
Franklin	1	1	1							
Fremont	16	9	4		1		1		1	
Galion	21	3	4							
Gibsonburg	4	1	1		6	1				
Greenwich					3	1				
Grover Hill		1								
Hamilton	8	2	3		2		1			
Hillsboro	3									
Home City	3									
Ironton	17		2		1		1			
Johnstown	1				2					
Kelleys Island	1									
Kent	1		2		1				25	1
Larue	14	1								
Laura	1		2				6			
Lebanon	2		3		1					

REPORT OF INFECTIOUS DISEASES FROM HEALTH OFFICERS, FOR THIRTEEN WEEKS ENDING JANUARY 2, 1897—Concluded.

Town	Dysentery and diarrhœa of children under two years of age		Scarlet fever		Typhoid fever		Whooping cough		Measles	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Leeds					10	1				
Lexington	1				1					
Lima			12							
Lisbon			1		3					
Lockland	2	1	1				6	1		
Logan			2							
Lorain	10	4			5	1				
Lynchburg	3									
Mansfield	13	2			11	2			1	
Marietta	1	1	1		3				20	
Martinsville	15	3	5	1						
McClure										
Mechanicsburg			2							
Mingo Junction	1									
Monroeville	4	1	5		1					
Mt. Vernon	1		11		1				2	
Murray City					3					
Napoleon	3	1								
Nelsonville	4	1	2		1					
Nevada	1				4					
Newark	15	17	75	1	20	2			1	
New London	1	1								
New Philadelphia			3		1					
New Richmond					1					
New Straitsville			14	1						
North Amherst			5				10		1	
North Lewisburg			1							
Orrville					2					
Patterville			2							
Painesville	2	2	10	2						
Paris	16	7	27	1						
Pleasant Hill			1							
Pleasant Ridge			5							
Portsmouth	35	6	1		2	2				
Ravenna	1									
Ridgeway			1							
St. Bernard			8							
Salem	14	2	12		5					
Sandusky	31	14							9	
Sciotoville	4	2								
Shelby	10	4			21	5				
Springfield	27	24	14	1	2	2			2	
Sugar Grove	1	1			1					
Summerfield					1		1	1		
Sycamore	2	1	1							
Tiffin	10	2	4		11	1			1	
Toledo	1		1							
Toronto	4	1			1					
Urbana	2		2		2		1			
Van Wert	4	1	1		2	1				
Wadsworth	1									
Wapakoneta	4	4								
Warren	3		1							
Washington C. H.	1									
Wauseon	1	1	4		1				1	
Waverly	4	1			2				15	
West Alexandria	1	1								
West Jefferson			1		2					
Whitelaw			1							
Wilkesville									2	
Woodsfield			2							
Youngstown	14	7	21	2	14	7			5	
Zanesville	1	1	14							
Total	1,[illegible]	[illegible]	[illegible]	17	4[illegible]	117	73	17		
Total for year	1,[illegible]	7[illegible]	1,[illegible]	75	1,[illegible]	461	672			

Abstract of Reports

OF

Deaths and their Causes

IN THE FOLLOWING CITIES AND TOWNS IN

OHIO FOR THE

Year ending December 31, 1896.

ARRIVALS OF THE DISTRICTS OF ALTUS AND THEIR LOCATION IN THE AND LOWING OPTION OF CHILD, INCLUDING MONTH OF JANUARY, 1888

RACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF JANUARY, 1896.

Of less than 10,000 ants (census 1890).	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence	Premature and still births.
*Alliance																																			
Bellaire	11,291	9	9.56	1	4	32														1								1						1	33
Bucyrus	7,794	14	21.55			33	1								1					33		33				1					4			
Circleville	6,843	18	31.56	32		3														3		3	12	8					32			1			
Defiance	9,016	8	10.66			4	2													1		1	3		1					32					
Delaware	9,142	16	21.00			1												1		1		1	7	3	1			1	4				4		1
Fostoria	10,641	5	5.64			1																	4		1										3
Fremont	6,451	6	11.16	1																1		1	4				1		32			1	1		
Galion	6,790	8	14.16		1	1	1													3	1	2	4	1				1							
Gallipolis	4,558	5	13.15		1	1										1				1		1	32									1	1		
Greenville	7,156	3	5.03		2															1	1		2						2						2
*Kenton																																			
Lancaster	8,045	8	11.93	2																3		3	4		1	1									
Marietta	10,659	11	12.38	1	1	3	1							1				1					32									32	2		
Marion	13,129	6	5.49																	1	4		32						1			1	1	2	1
*Martin's Ferry																																			
Middletown	10,533	12	13.67		1	2								1	1	1				1		1	2	1	1	2			1			3			
Mt. Vernon	6,548	6	10.99																	2		2	4						3			1			
Norwalk	8,270	7	10.16	32																1		1	3	1	1				1						
Piqua	11,627	10	10.32		3	1	1													1		1	3						1				1	1	
*Pomeroy																																			
Salem	7,164	6	10.05		1	1														1	1		32									32			
*Troy																																			
Urbana	6,669	8	14.39																	32		2	5		1				3						
Warren	7,837	4	6.12			32														1		1	1			1									1
Washington C. H.	7,358	8	13.05		1	32	1													32	1	1	32						1	1			1		1
Wellston	10,932	10	10.98		2	5		3	1											32		2	32						32						1
Wellsville	6,834	7	12.29			3														1		1	32					1	1						1
*Wooster																																			
Xenia	7,471	13	20.88	4	1	1														3			6		1	1	1		1			1	3		1
Totals	202,748	208	12.32	11	19	36	7	3	1				1		3	2	2	5		37	5	30	102	6	7	7	3	8	35	4	2	26	17	8	17

*No report.

[illegible]

[illegible]

[illegible]

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF MARCH, 1896.

Cities of less than 10,000 inhabitants. Census 1890.	Population estimated)	Total deaths, all causes.	Amount rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Alliance	10,239	5	5.86	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	1	3	4	1	.....	.....	1	.....	.....	.....	.....	1	.....	1	1
Bellaire	11,291	9	9.56	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	3	1	.....	.....	.....	.....	.....	.....	1	1	2	.....	1
Bucyrus	7,794	8	12.32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	3	11	1	.....	1	2	.....	3	.....	2	.....	.....	2	2
*Defiance	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware	9,142	11	14.44	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2	4	1	1	.....	.....	1	.....	.....	.....	4	.....	.....	3
Fostoria	10,641	8	9.04	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	7	.....	1	.....	.....	.....	4	.....	.....	2	.....	.....	3
Fremont	6,451	4	7.44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	2	.....	.....	1
Galion	6,780	7	12.39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	3	.....	3	4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gallipolis	4,558	7	18.43	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	3	2	1	.....
*Greenville	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Kenton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lancaster	8,045	5	7.46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	1	3	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marietta	10,659	6	6.75	3	.....	2	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	1
Marion	13,129	14	12.80	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	8	.....	.....	.....	.....	2	.....	1	.....	5	.....	1	.....
Martin's Ferry	8,399	5	7 14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Middletown	10,533	7	7.97	2	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2	4	.....	1	1	.....	.....	.....	.....	.....	2	.....	.....	.....
Mt. Vernon	6,548	5	9.16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	3	1	.....	1	.....	.....	.....	.....	.....	1	1	.....	.....
Norwalk	8,270	3	4.38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Piqua	11,627	12	12.39	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	2	2	5	.....	.....	.....	.....	.....	.....	2	2	1	3	.....	.....
*Pomeroy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salem	7,164	8	13.40	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	1	3	1	.....	1	.....	.....	.....	.....	.....	1	.....	.....	1
*Troy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Urbana	6,669	4	7.20	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	3	.....	.....	.....	.....	.....	.....	2	.....	1	.....	.....	.....
Warren	7,837	7	10.72	3	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	5	.....	.....	1	.....	1	.....	.....	.....	2	.....	.....	.....
Washington C. H	7,358	15	24.46	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	2	9	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Wellston	10,932	5	5.49	1	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....
Wellsville	6,834	12	21.07	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	2	1	1	7	2	.....	.....	.....	.....	.....	1	1	.....	.....	.....	4
*Wooster	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Xenia	7,471	10	16.06	1	.....	2	.....	.....	.....	.....	1	1	.....	.....	1	1	1	.....	.....	2	1	1	2	.....	.....	1	.....	.....	.....	1	.....	.....	3	1	.....
Totals	205,214	194	11.34	16	7	19	1	.....	.....	.....	1	1	.....	1	1	1	1	1	2	38	5	27	100	13	3	8	3	7	13	9	2	22	20	6	14

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF MAY, 1896.

Cities of 10,000 inhabitants (census 1890) or over	Population (estimated.)	Total deaths, all causes	Annual rate per 1,000	Total under one year	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhoeal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Ph. bis pulmonalis.	Total local diseases.	Apoplexia.	Brigh't disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Akron	37,500	32	10.22	6	7	2	1	1															10												4
Canton	11,463	10	10.43	2	3	1																	4												1
Chillicothe	338,775	430	10.95	78	98	16	2	2			1										1	1	244	12	1	10	2	1	35	1		67	30	6	59
Cincinnati	396,000	849	11.77	204	265	41	5	5			2			1							1	1	345	14	1	11	2	1	35	1		94	36	11	43
Cleveland	261,485	653	9.99	154	183	31	3	3			1								1				295	14	1	10	2	1	30	1		76	30	9	40
Columbus	90,000	183	9.84	45	57	12	1	1															95	4		3			10			23	8	2	14
Dayton	61,411	111	10.82	27	34	7																	57	2		2			5			14	5	1	6
East Liverpool	20,000	34	10.20	7	9	2																	17	1		1			2			3	1		3
Findlay	21,402	33	9.60	7	8	1																	17	1		1			2			3	1		3
Hamilton	23,113	45	11.50	9	11	2																	23	1		1			3			5	2		4
Ironton	15,024	29	13.90	6	7	1																	15	1		1			2			3	1		2
Lima	16,240	30	15.45	6	7	1																	15	1		1			2			3	1		2
Mansfield	12,210	25	12.27	5	6	1																	13	1		1			2			2	1		2
Marysville	10,111	20	11.85	4	5	1																	11	1		1			2			2	1		2
Newark	18,080	38	12.55	8	10	2																	20	1		1			2			4	1		3
Portsmouth	20,506	42	12.47	9	11	2																	22	1		1			2			4	1		3
Sandusky	14,114	29	12.31	6	7	1																	15	1		1			2			3	1		2
Springfield	31,806	65	12.25	14	17	3																	34	2		2			4			6	2		4
Steubenville	13,210	27	11.19	6	7	1																	14	1		1			2			3	1		2
Tiffin	13,151	27	11.01	6	7	1																	14	1		1			2			3	1		2
Toledo	109,910	223	12.16	48	58	10	1	1															116	6		6	1		12			24	8	2	12
Youngstown	33,694	68	12.09	15	18	3																	36	2		2			4			7	2		4
Zanesville	22,911	46	13.50	10	12	2																	24	1		1			3			5	2		4
Totals	1,391,763	2,969	12.01	696	839	142	13	13			4			2					1		1	2	1,327	69	3	63	8	3	156	3		336	132	32	142

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF MAY, 1896.

Cities of less than 10,000 inhabitants—Census 1890.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentry.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
•Alliance	11,291	17	18.06	2	5				1													2	11	1		1	2		2			2			1
Bellaire	7,794	8	12.32			2	1															2	4	1											
Bucyrus	6,843	6	10.52	1																		1	5					1		1					
Circleville																																			
•Defiance																																			
Delaware	9,142	15	19.69																		1	2	6	2											
Fostoria	10,641	5	5.64																			2	4			1									
Fremont	6,461	11	20.46			2																2	2		1										
Galion	6,780	9	15.93			2	1															2	2												
Gallipolis	4,568	17	44.76			2																2	2					1							
•Greenville																																			
•Kenton																																			
Lancaster	8,045	14	20.88		1	2															1	2	6	2	2										
Marietta	10,659	7	7.88			2	1															2	2												
Marion	13,739	11	10.06	2		2		2	1													2	2												
Martin's Ferry	8,399	7	10.00																																
Middletown	10,533	10	11.38	2		2	1				1											2	5	2											
Mt. Vernon	6,518	2	3.66																			2	5	2											
Norwalk	8,270	2	2.90																			2	2												
Piqua	11,627	10	10.32	1	1	2										1					1	2	4			1									
•Pomeroy																																			
•Salem	7,164	4	6.70	1																	1	2	5	2				1						1	
•Troy																																			
Urbana	6,669	8	14.39																		1	2	5	2		1									
Warren	7,837	4	6.12																			2	3	1									1		
Washington C. H	7,358	6	9.78	2	1	1			1													3	1						1						
Wellston	10,982	4	4.39																		1	2	1												
Wellsville	6,834	7	12.29			2																2	1					1							
•Wooster																																			
Xenia	7,471	11	17.67																			2	5	2				1					1		
Totals	194,975	195	12.00	13	8	22	4	2	2	1	1					1				3	7	31	71	10	3	7	6	1	20	7		6	24	10	7

•No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF JUNE, 1900.

Cities of 10 000 inhabitants census 1900 or over.	Population estimated.	Total deaths, all causes.	Annual rate per 1000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhoeal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tetanus.	Typhoid fever	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Debility and marasmus.	Heart disease.	Meningitis.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Akron	37,566	31	9.90	5	3	5	1	1																										
Canton																																		
Chillicothe	11,803		53.90																															
Cincinnati	328,775	447	15.83	110	60	26	11	2			1										15	1	127	43	1	15	1	1	1	16	1	1	1	
Cleveland	355,000	412	13.90	115	80	26	5	2			1										15	1	127	43	1	15	1	1	1	16	1	1	1	
Columbus	121,446	111	10.96	30	11	11	1	1													4	1	41	11	1	4				5				
Dayton	80,678	90	13.39	31	13	8	1	1													4	1	41	11	1	4				5				
East Liverpool	16,444	17	8.11	3	1	1															1		3	1		1								
Findlay	20,000	16	9.60	3	1	1															1		3	1		1								
Hamilton	21,492	17	15.04	10	4	4	1	1													1		3	1		1								
Ironton	12,513	19	16.47	4	1	1															1		3	1		1								
Lima	25,024	19	9.11	4	1	1															1		3	1		1								
Mansfield	16,569	11	8.12	1																	1		3	1		1								
Marietta	12,749	9	3.78																		1		3	1		1								
Newark	18,101	14	9.24	3	1	1															1		3	1		1								
Portsmouth	13,000	17	14.90	2	1	1															1		3	1		1								
Sandusky	20,956	16	9.47	3	1	1															1		3	1		1								
Springfield	41,305	26	7.55	1																	1		3	1		1								
Steubenville	14,210	1	.84																		1		3	1		1								
Tiffin	13,051	17	15.65	4	1	1															1		3	1		1								
Toledo	108,000	110	12.12	35	14	6	1	1													1		3	1		1								
Youngstown	52,618	30	6.84	5	1	1															1		3	1		1								
Zanesville	22,001	34	17.77	4	1	1															1		3	1		1								
Totals	1,394,703	1,488	13.09	408	180	106	22	8			2										60	4	377	127	3	60	3	2	2	70	3	3	3	

No report

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF JUNE, 1896.

Cities of less than 10,000 inhabitants.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery	Malarial fevers.	Measles	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
*Alliance																																		
Bellaire	11,291	11	11.69		3	3					1				1					3		3	3				1		1		1	2		1
Bucyrus	7,794	7	10.78			1						1								1		1	5	1	1				3					
Circleville	6,843	6	10.52			2			1				1										4						1	1				1
Defiance	9,016	7	9.35			1														2	1	1	3					1	1			1		
Delaware	9,142	6	7.88																															
Fostoria	10,641	3	3 38	1		1		1															2					1	1					1
Fremont	6,451	5	9 30																	1		1	4	2					1					
Galion	6,780	7	12.39	1	1	1								1						1		1	3				1		1	1		1	1	
Gallipolis	4,558	12	31.58			3												2	1	3	1	2	6							1				
*Greenville																																		
Krenton																																		
Lancaster	8,045	5	7.46	1																2		2	2						1			1		
Marietta	10,659	7	7.88	1		4			2						1			1					3						1				2	2
Marion	13,129	4	3.66			2	1					1											1								1			
Martin's Ferry	8,399	7	10.00																															
Middletown	10 533	12	13.67	1	2	5	1			1	2	1								2	1	1	5	1		1	1		2					
Mt. Vernon	6,548	9	16.49			1														1		1	4	1					1	1	1	1	2	
Norwalk	8,270	7	10.16			1														1	1		5	1	4							1		
Piqua	11,627	13	13.42			2			1					1				1		4	1	3	6	2	2				1	1				
*Pomeroy																																		
Salem	7,164	7	11.72		1	1					1									1			4	1			1		2			1		
*Troy																																		
Urbana	6 669	6	10.81	1		1		1															4	1				1	1	1			1	
Warren	7,837	4	6.12																	1		1	3	1					1					
Washington C. H	7,358	6	9.78	2																2		2	2					1	1			2		2
Wellston	10,932	7	7.68	1	1	4		2		1										1		1											1	
Wellsville	6,834	7	12.29			1			1											4		2	2		1						1			2
*Wooster																																		
Xenia	7,471	7	11.24																	1		1	3						2			2	1	
Totals	194,975	172	10.58	9	8	34	2	4	6	2	4	4		2	2			4	1	31	5	23	74	11	8	1	4	4	22	7	1	5	9	9	14

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF JULY, 1896.

Cities of 10,000 inhabitants (census 1890) or over.	Population estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastrits and peritonitis.	Heart disease.	Meningitis	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Akron	37,566	43	13.74	7	3	15	...	7	...	...	1	...	...	...	...	...	...	1	...	7	....	7	17	2	4	.....	1	.....	4	3	.....	.....	1	3	.....
Canton																																			
Chillicothe	11,503	21	21.91	4	....	8	....	4	1	....	....	....	....	1	....	....	....	....	....	4	....	3	7	....	3	....	1	....	....	....	....	....	1	1	1
Cincinnati	338 775	498	17.61	125	51	92	14	28	2	3	....	....	....	1	....	....	....	6	3	96	11	53	249	12	6	9	16	23	2	....	....	2	33	28	48
Cleveland	356,800	617	20.81	202	87	178	4	123	....	8	7	5	....	4	2	1	....	1	9	59	9	29	174	4	4	13	47	17	....	....	....	41	57	35	35
Columbus	121 485	144	14.22	37	9	56	1	15	....	5	1	7	....	....	....	....	....	4	....	40	7	24	48	1	....	3	3	4	....	....	....	1	11	8	11
Dayton	80,639	94	13.99	36	9	37	2	12	....	....	....	....	....	....	....	....	....	1	1	17	3	12	43	1	1	1	4	2	11	1	....	....	1	4	3	11
East Liverpool	16,444	12	8.76	4	....	4	....	3	1	....	....	....	....	....	....	....	....	....	....	1	1	....	2	....	1	....	....	....	....	....	....	1	....	....	....	....
Findlay	20,000	30	18 00	9	2	12	....	11	....	....	....	....	....	....	....	....	....	....	....	5	....	4	8	....	1	....	....	....	4	....	....	1	3	2	....	....
Hamilton	21,492	16	14 31	3	3	8	....	3	....	....	....	....	....	1	....	....	....	....	....	7	3	3	8	1	1	....	....	....	1	1	....	1	1	1	....	....
Ironton	12,413	10	9.62	1	1	4	1	1	1	....	....	....	....	....	....	....	....	....	....	1	....	1	2	....	....	....	1	....	....	....	....	....	3	....	....
Lima	25,024	31	14.80	12	....	16	....	14	....	....	1	....	....	....	....	....	....	....	....	2	....	1	4	....	....	....	....	....	....	....	....	....	6	3	1
Mansfield	16,249	14	10.34	3	2	5	....	3	....	....	1	....	....	....	....	....	....	....	....	6	....	5	2	....	....	....	....	....	1	....	....	....	....	1	....	....
Massillon	12 749	15	14.13	8	....	8	....	5	....	....	1	....	....	....	....	....	....	....	....	....	....	....	6	....	....	....	....	....	1	1	....	....	....	1	....	....
Newark	18,101	24	15.91	7	3	11	....	4	....	....	3	3	....	....	....	....	....	1	2	4	1	3	6	3	....	....	1	....	2	1	....	....	3	....	2
Portsmouth	13,089	28	25 67	4	5	8	1	4	....	....	1	....	....	....	....	....	....	....	....	2	1	1	15	1	2	1	2	....	3	....	....	....	....	....	....
Sandusky	20,256	20	11.84	3	2	5	....	3	1	1	....	....	....	....	....	....	....	....	....	2	1	1	6	2	....	....	....	1	3	....	....	....	....	1	....
Springfield	41,305	42	12.20	11	4	13	1	7	....	....	1	2	....	....	....	....	....	2	....	4	....	4	20	3	2	....	1	6	3	1	....	2	3	4	2
Steubenville	14,240	1	.84	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Tiffin	13 051	17	15.63	2	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	1	1	....	8	....	1	....	1	1	3	....	....	2	3	1	1
Toledo	108,040	125	13.77	39	15	42	2	22	1	....	4	6	....	....	....	....	....	4	1	10	3	5	47	6	2	2	4	3	2	7	2	....	13	13	20
Youngstown	52,618	33	7.53	9	3	13	....	6	....	....	1	....	....	....	....	1	....	....	....	5	....	5	13	....	....	....	....	2	2	....	....	....	1	1	....
Zanesville	22,968	33	17.35	7	3	13	....	8	....	....	1	1	....	....	....	1	....	....	....	5	2	3	7	1	....	....	....	....	3	....	....	....	4	3	....
Totals	1,304,703	1,878	16.51	609	308	521	29	283	7	17	29	29	12	6	2	3	...	38	16	278	43	164	692	37	28	29	83	58	107	56	3	78	150	115	132

*No report

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF JULY, 1896.

Cities of less than 10,000 inhabitants. Census 1890.	Population (estimated).	Total deaths, all causes.	Amount rate per 1000.	Total under one year.	Total under five years and over one year	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis Pulmonalis.	Total local diseases.	Apoplexia.	Bright's diseases.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
*Alliance																																		
Bellaire	11,291	17	18.06	6	3	10		2							2					2			2		1						1	1	2	
Bucyrus	7,794	9	13.87	2		4		2												1		1	4				1		3					1
Circleville	6,843	11	19.29	2		4		2				1			1					3		2	3						1		1	1	1
*Defiance																																		
Delaware	9,142	13	17.06	1		2		1										1		3		2	3					1				3		
Fostoria	10,641	6	6.77		2																	1	4						4					2
Fremont	6,451	3	5.58	1		2						1								1			1								1			
Galion	6,780	2	3.54																	2	2													
Gallipolis	4,558	5	13.15			2												1		2		2	1											
*Greenville																																		
*Kenton																																		
Lancaster	8,045	11	16.40	6		2		2												1		1	7	1	1			4						
Marietta	10,659	8	9.00	3		3		1							1					2	2		1						1			1		
Marion	13,129	8	7.32	2		3		2				1											4		1				1		2	1		2
Martin's Ferry	8 399	12	17.15																															
Middletown	10,533	13	14.81	5	1	7		4		1	1	1											6					2		1		3		
Mt. Vernon	6,548	5	9.16	1	1	1		1												1		1	3	1					2					
Norwalk	8,270	5	7.26																	3	2	1	1					1						
Piqua	11,627	15	15.49	1	2	4		1				3								4	2	2	5						4	1			1	
*Pomeroy																																		
Salem	7,164	9	15.08	3		4	1	1															2						1			1	2	
*Troy																																		
Urbana	6,669	7	12.59	1		1		1												1		1	4	1						3		1		
Warren	7,837	5	7.65	1		2		1															2		1				1				1	1
Washington C H	7,358	1	1.63																														1	1
Wellston	10,932	4	4.39	2		1		1												1		1												
Wellsville	6,834	9	15.80			4				1	1				1			1		2		1	3				1	1	1					
*Wooster																																		
Xenia	7 471	19	30.52			3			2									1		2		1	2					1	1			11	1	
Totals	194,975	197	12.13	37	9	59	1	22	3	2	4	7	1	1	2	...	...	6	3	32	7	22	58	3	4	.....	2	10	19	7	2	6	19	9	8

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF AUGUST, 1896.

Cities of 10,000 inhabitants (census 1890) or over.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and under one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Akron	37,566	46	14 69	11	6	16	.....	10	...	...	...	...	...	1	...	...	...	1	...	6	3	.....	16	1	2	.....	6	1	3	3	...	.....	4	3	2
*Canton	.....	.....	.....	.....	.....	.....	.....	.....	...	...	...	...	...	...	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chillicothe	11,503	21	21.91	3	.....	3	.....	3	...	...	...	...	...	...	...	...	...	...	...	1	.....	1	9	1	2	.....	.....	.....	.....	2	...	.....	2	6	.....
Cincinnati	338,775	463	16.40	90	43	70	8	20	1	...	...	...	...	...	...	...	2	...	14	3	108	16	62	229	18	8	11	9	9	21	26	2	15	29	27	40
Cleveland	355,800	425	14.33	142	62	106	10	60	1	2	7	3	1	...	1	1	...	15	1	38	2	20	139	3	10	10	30	10	41	13	.....	22	35	24	24
Columbus	121,485	135	13.34	38	10	41	.....	14	...	...	4	...	...	...	...	...	...	8	...	31	3	27	46	1	.....	1	3	5	10	4	.....	.....	6	14	11
Dayton	80,639	89	13.24	34	6	27	1	8	...	...	1	...	...	...	...	...	...	6	...	14	5	5	40	...	.....	1	3	2	6	.....	.....	4	4	4	20
East Liverpool	16,444	10	7.30	3	.....	3	.....	2	...	...	...	...	...	...	...	...	...	1	...	4	1	3	14	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Findlay	20,000	31	18.60	9	3	13	.....	8	...	...	...	...	1	...	...	...	...	2	...	4	1	3	14	.....	.....	.....	.....	.....	1	2	.....	11	1	2	.....
Hamilton	21,492	21	11.73	7	1	7	2	...	...	...	...	...	...	...	1	...	...	1	...	5	.....	4	7	.....	1	.....	1	.....	1	2	.....	.....	1	1	3
Ironton	12,413	21	20.30	3	2	11	5	...	...	...	4	...	...	...	...	...	...	...	...	3	.....	3	6	.....	1	.....	.....	.....	3	.....	.....	2	1	.....	.....	.....
Lima	25,024	31	14.80	10	9	15	.....	8	...	...	4	...	...	...	...	...	2	2	1	1	.....	1	6	.....	1	.....	.....	.....	3	2	.....	.....	9	.....	2	2
Mansfield	16,249	18	13 30	6	.....	7	.....	4	...	...	...	...	...	...	...	...	...	2	...	3	.....	3	4	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	4	3
Massillon	12,749	13	12.24	.....	.....	6	.....	4	...	...	...	...	...	...	...	...	...	1	1	2	1	1	4	.....	2	.....	.....	.....	1	.....	.....	.....	.....	1	.....
Newark	18,101	28	18.56	5	4	8	.....	2	...	...	1	2	2	1	...	...	...	...	...	6	2	4	8	.....	.....	.....	.....	2	2	3	1	.....	3	3	4
Portsmouth	13,089	21	19.25	7	2	9	3	3	...	...	1	1	...	...	...	...	...	1	...	4	.....	4	7	.....	.....	.....	.....	.....	2	.....	.....	1	.....	1	1
Sandusky	20 256	11	5.43	2	1	2	.....	2	...	...	...	...	...	...	...	...	...	...	...	3	.....	1	5	.....	.....	.....	.....	1	3	1	.....	.....	.....	1	1
Springfield	41.305	26	7.55	1	.....	5	.....	1	...	...	1	2	...	1	...	...	...	...	...	4	.....	4	12	1	1	1	.....	2	2	1	.....	.....	3	2	4
Steubenville	14,240	5	4.22	2	2	3	1	...	...	...	...	...	...	...	...	1	...	...	1	...	.....	...	2	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Tiffin	13 051	10	9 16	.....	.....	.....	.....	...	...	...	...	...	...	...	...	...	...	...	...	3	.....	3	2	1	.....	.....	.....	.....	1	.....	.....	.....	1	1	3
Toledo	108,940	168	18 51	73	20	56	.....	24	3	...	5	6	...	3	...	...	...	1	5	24	5	14	58	8	.....	2	8	2	3	.....	1	2	20	9	12
Youngstown	52.618	42	9.58	14	6	16	.....	4	...	...	1	...	...	...	...	...	3	4	...	3	.....	3	18	.....	.....	2	2	.....	1	1	.....	.....	3	3	7
Zanesville	22,964	21	10.98	5	3	8	.....	.....	...	...	...	2	...	...	...	1	...	3	1	1	.....	3	6	1	1	.....	.....	.....	1	2	.....	1	3	2	2
Totals	1,364,703	1,654	14.53	465	180	432	28	179	5	6	27	28	6	5	2	2	8	...	63	13	269	39	168	639	35	29	28	63	36	105	62	4	62	125	107	139

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF AUGUST, 1896.

Cities of less than 10,000 Inhabitants. Census 1890.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera Infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
*Alliance																																			
Bellaire	11,291	15	15.94	3	4	3														3		3	5		1		1						1	3
Bucyrus	7,794	7	10.78																	1			6				1		2					1
Circleville	6,843	9	15.78			1														1		1	7	3			1		1	1	1			1
*Defiance																																			
Delaware	9,142	12	15.76																																
Fostoria	10,641	3	3.38																				3		1			1							
Fremont	6,451	11	20.46	1		2		1												4	1	3	4		1				3				1	
Galion	6,780	8	14.16	3	3	5	2		3											1			2						1					
Gallipolis	4,558	11	28.96			3		2										1		1		1	7			1								1
*Greenville																																			
*Kenton																																			
Lancaster	8,045	9	13.42	4		2							1					1		1		1	5				1					1		
Marietta	10,659	9	10.13	3		3		1	2											1		1	3	1					1			1	1	3
Marion	13,129	12	10.97	6		8		6															1						1			3		1
Martin's Ferry	8,399	12	17.15																																
Middletown	10,533	14	15.90	5	1	7		2					1							2		2	5	1				1			1				
Mt. Vernon	6,548	8	14.66	2	2	3		1										1					4					2	1	1			1		
Norwalk	8,270	5	7.26	1	1	2		1			1												3	1	1						1				
Piqua	11,627	12	12.39	1	1	5		2				3								2		2	2						2				1		
*Pomeroy																																			
Salem	7,164	11	18.43	2		6										1				2	1		2	1	1									
*Troy																																			
Urbana	6,669	7	12.59	2		2																	3	1			1								
Warren	7,837	8	12.24	3		4		3															3	1					2						
Washington C. H	7,358	†																																	
Wellston	10,932	5	5.49	1	1	2		1		1													1												
Wellsville	6,834	4	7.03																				4					1	1						1
*Wooster																																			
Xenia	7,471	16	25.70			8		1			1	2								2		2	1				1					5		
Totals	194 975	208	12 80	37	13	66	2	24	2	1	7	6	2			3		14	2	21	2	16	71	9	5	2	8	9	15	9	2	4	15	5	13

*No report. †No deaths

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF SEPTEMBER 1896.

Cities of 10,000 inhabitants (census 1890) or over.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fever.	Measles	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough	Total constitutional diseases.	Cancer.	Phthisis pulmonalis	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases	Total violence.	Premature and still births.
Akron	37,566	37	11.80	4	.....	.....	.....	4	.....	.....	.....	.....	2	.....	.....	.....	.....	2	.....	2	2	2	10	1	.....	.....	1	.....	2	.....	.....	1	6	5	.....
*Canton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Chillicothe	11,603	15	15.74	.....	.....	5	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	1	6	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1	48
Cincinnati	338,735	382	13.31	70	37	62	17	6	.....	1	3	1	.....	.....	.....	1	1	9	1	6	21	94	172	1	7	13	11	4	21	1	.....	21	32	1	327
Cleveland	355,800	390	11.80	113	43	67	18	14	.....	1	3	1	1	.....	.....	1	1	5	1	1	8	53	94	.....	6	10	13	18	21	.....	.....	17	40	2	27
Columbus	121,485	112	11.06	27	12	25	5	1	2	.....	.....	.....	.....	.....	.....	.....	1	6	2	.....	6	17	50	.....	4	6	.....	3	5	.....	1	6	10	6	7
Dayton	80,659	162	15.18	19	17	32	13	3	2	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	2	10	36	.....	.....	2	.....	.....	2	.....	.....	.....	2	.....	1
East Liverpool	16,414	9	6.57	3	1	4	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	3	12	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1	.....
Findlay	20,000	9	5.40	6	2	4	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	6	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	1
Hamilton	21,49	26	14 31	3	1	4	4	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	7	3	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ironton	12,413	17	16.43	3	1	4	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	5	6	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lima	25,054	23	11.99	7	2	9	5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	1	3	6	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mansfield	16,240	16	11.82	1	1	2	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	4	6	.....	1	.....	.....	1	.....	.....	.....	.....	1	.....	.....
Massillon	12,745	9	8.48	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newark	18,101	25	16.57	3	2	7	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	2	.....	.....	1	7	11	.....	1	.....	.....	1	2	.....	.....	1	2	.....	1
Portsmouth	13,980	20	18.34	3	2	11	3	3	.....	1	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	4	4	12	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	1
Sandusky	20,256	9	5.33	2	1	2	2	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	3	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Springfield	41,300	32	9.54	7	1	12	9	1	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	4	6	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Steubenville	14,240	5	4.92	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tiffin	13,051	12	11.04	1	.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Toledo	108,140	140	15.42	37	19	25	6	1	.....	1	1	.....	1	.....	.....	.....	.....	1	.....	.....	1	5	8	.....	1	1	.....	.....	1	.....	.....	.....	1	1	.....
Youngstown	57,648	46	10.49	17	8	20	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	4	7	.....	1	1	.....	.....	3	.....	.....	.....	1	4	2
Zanesville	22,946	19	9.99	8	2	5	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	2	.....	.....	.....	2	.....	2
Totals	1,364,703	1,141	12.67	329	165	325	82	62	5	4.10	12	1	1	.....	.....	6	2	67	10	298	52	145	537	2	27	41	40	37	79	39	1	68	144	97	117

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF SEPTEMBER, 1896.

Cities of less than 10,000 inhabitants (census 1890).	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
*Alliance																																			
Bellaire	11,291	10	10.63	4	1	2	2		1										1	2	2		6		1		1		1	1		2			2
Bucyrus	7,794	8	12.32	1		2	2	1							1			1							1						1			1
Circleville	6,843	10	17.52	1		5		1		1								2		3	2	1	2	2	3	2		1	1						
*Defiance																																			
Delaware	9,142	11	14.44																																
Fostoria	10,641	7	7.89			3	2									1							4	1					3					2
Fremont	6,451	12	22.32		2	2	2								1			1		2	2		3						1	1		1	4	1	
Galion	6,780	8	14.16	1		1	1																6		1	1		2	1					1	
Gallipolis	4,558	6	15.79																	1			4						2					1	
*Greenville																																			
*Kenton																																			
Lancaster	8,045	8	11.93			3												3		1		1	4	1						1					
Marietta	10,659	13	14.64	1	4	6	4		1									1		2		2	3									1	1	2	
Marion	13,129	25	22.85	5		21	7	5										9		1			3								1			1	
Martin's Ferry	8,398	12	17.15																	2		2	3	1											
Middletown	10,533	5	5.69																										2						
*Mt. Vernon																																			
Norwalk	8,270	5	7.26																	1		1	4					1	3						
Piqua	11,627	14	14.44		2	3	2											1		1			2		1				1			1	1		
*Pomeroy																																			
Salem	7,164	6	10.05																	1		1	4	1		1		1			1	1			
*Troy																																			
Urbana	6,669	9	16.19	2		2		1										1					5						2				2		1
Warren	7,837	4	6.12	1																			3		2				1				1		
Washington C. H.	7,358	4	6.24	1																			3						2				1		
Wellston	10,932	13	14.27			9	4		1				2					2		3	1	2	1						1						
Wellsville	6,834	3	5.27																	1		1												2	1
*Wooster																																			
Xenia	7,471	10	16.06	3	1	2												1		2	2		4					1	1			2	2		
Totals	188,427	203	12.35	20	10	62	22	7	3			1	2		2	1		22	1	25	8	14	67	4	6	3	3	6	23	3	1	8	13	7	10

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF OCTOBER, 1896.

Cities of 10,0000 inhabitants (census 1890) or over.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Brights disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births
Akron	37,566	36	11.50	....	....	4	....	....	....	....	....	....	1	....	....	....	....	1	....	9	2	3	13	2	....	....	1	1	5	....	....	2	5	5	2
*Canton	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chillicothe	11 503	20	20.86	....	....	5	1	....	....	....	....	....	1	1	....	....	....	....	2	3	....	2	10	1	....	....	2	....	1	....	1	2	....	2
Cincinnati	338,775	388	13.74	51	37	58	22	2	1	..	5	1	..	..	1	..	..	..	11	85	20	54	197	13	5	18	5	10	18	11	1	30	26	22	36
Cleveland	355,800	386	13.02	101	74	76	50	5	..	..	2	1	1	1	..	..	..	..	6	33	8	13	137	6	2	14	30	8	27	13	2	35	19	15	36
Columbus	121,485	116	11 46	29	11	22	9	1	..	..	1	1	1	..	..	..	..	..	6	17	1	13	63	3	3	2	1	4	11	8	1	7	5	8	10
Dayton	60,639	76	11.30	19	15	25	15	..	..	..	..	..	..	..	..	..	..	..	1	9	2	7	31	2	..	1	5	..	2	..	..	..	2	4	10
East Liverpool	16 444	26	18.97	....	....	11	11	..	..	..	..	..	..	..	..	..	..	..	..	4	....	4	8	....	....	1	....	....	....	....	....	....	1	....	....
Findlay	20 000	28	16.80	6	4	10	5	..	..	..	4	..	..	..	..	..	..	..	1	3	....	1	8	....	....	....	3	....	1	....	....	1	6	1	....
Hamilton	21,492	22	12.28	5	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	12	1	1	..	..	..	5	..	..	1	4	2	2
Ironton	12,413	22	21.27	4	3	6	3	..	..	..	..	..	..	..	..	..	..	..	1	6	....	4	5	....	....	....	....	....	3	....	....	2	2	2	1
Lima	25,024	28	13 42	1	1	8	1	..	..	..	..	..	1	..	..	..	..	..	..	4	1	4	..	..	..	..	..	..	..	..	..	..	12	4	..
Mansfield	16,249	22	15.63	1	....	4	1	..	..	..	..	..	..	..	..	..	..	..	..	3	....	2	3	9	1	2	....	....	....	1	....	....	1	2	1	....
Massillon	12,749	10	9.42	....	....	3	2	..	..	..	..	..	..	..	..	..	..	..	..	1	....	....	1	4	....	1	....	....	....	2	....	....	1	1	....
Newark	18,101	37	24.53	1	8	23	18	..	..	..	1	1	1	..	..	..	..	..	2	5	2	3	7	1	1	....	....	1	3	....	1	2	....	....	1
Portsmouth	13,089	22	20 17	1	2	5	3	..	..	..	..	..	1	..	..	..	..	..	1	3	2	1	10	1	2	....	2	....	4	1	....	....	4	....	1
Sandusky	20,256	22	13 03	....	....	12	8	..	..	..	..	..	1	..	..	..	..	..	2	2	1	1	1	....	....	....	1	....	....	....	....	6	1	1
Springfield	41 305	39	11.33	5	9	14	10	..	..	..	..	..	..	..	..	..	1	..	2	5	1	3	16	6	....	2	1	1	2	....	....	3	2	3	3
Steubenville	14,210	3	2.53	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Tiffin	13,051	13	11.19	1	....	2	1	..	..	..	..	..	..	..	..	..	..	..	1	1	....	1	7	....	....	....	....	....	2	....	....	1	1	1	1
Toledo	108,940	138	15 20	19	20	33	15	2	1	..	3	..	1	1	..	..	..	1	..	30	7	17	51	2	1	4	7	....	7	....	....	4	18	6	13
Youngstown	52,618	43	9.81	3	11	11	4	..	..	..	..	..	..	..	..	..	..	..	..	5	....	2	20	....	....	....	1	1	6	....	....	4	3	7	10
Zanesville	22,964	23	12.02	5	4	7	4	..	..	..	..	..	..	..	..	..	..	..	..	5	2	3	7	....	....	....	....	1	1	1	....	2	3	1	....
Totals	1,374,703	1,520	13.37	247	201	334	182	10	4	4	12	6	8	2	1	2	1	61	11	234	52	139	617	39	19	42	59	27	100	35	4	95	127	84	129

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF OCTOBER 1896.

Cities of less than 10,000 inhabitants (census 1890).	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial diseases.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
BAlliance												1																							
Bellaire	11.291	14	13.99	1	2	3	1											1		3		3	7		1			1	4			1			3
Cucyrus	7,794	11	16.94			6	5								1	1		2		1		1	3					2	1					1	1
Circleville	6,843	10	17.52			5														2		2	3				1		2		1			1
*Defiance																																			
*Delaware																																			
Fostoria	10.641	6	6.77			2	1		1									1					4		1		1		2						
Fremont	6,451	14	26.04	1	3	5	4											1		2		2	2						1			1	4	1	
Galion	6,780	6	10.62		4	4	3															2	3				1		1						
Gallipolis	4 558	8	21.06																	1			7	1					2						
*Greenville				*																															
*Kenton																																			
Lancaster	8 045	9	13.42	2		1							1							1	1		5		1				1			1		1	
Marietta	10,659	14	15.76	4	3	5	3	2										2		2		2	5		1				2	1		2			
Marion	13,129	18	17 21			12	10													1			5	1	1					1					1
Martins Ferry	8.389	4	5.72																																
Middletown	10,533	8	9.11	1		2					1							1		4		4	2						2						
Mt. Vernon	6,548	7	12.83			2											1	1					5		1	1			2		1				
Norwalk	8.270	6	8.76																																
Piqua	11,627	7	7.22	1	2	2	1											1		2		1	2								1	1			
*Pomeroy																																			
Salem	7,164	7	11.72	1		1	1																6					1	2						
*Troy																																			
Urbana	6 669	10	17.99	2	1	3		1						1				1		3	1	2	3				1								
Warren	7,837	4	6.12			2							2										2					1							
Washington C. H	7,358	12	19.56	1	3	3	3													2		2	6									1		1	1
Wellston	10 932	3	3.29			3	2									1																			
Wellsville	6,834	3	5.27																	1		1	2						1						
*Wooster																																			
Xenia	7,471	9	14.46			1												1		2		2	1									5			
Totals	185,833	190	12.27	14	18	62	34	3	1	1	1		3		2	2	1	12		27	3	21	72	2	4	1	5	5	24	2		8	13	4	7

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF NOVEMBER, 1896.

Cities of 10 000 inhabitants (census 1890) or over.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year	Total zymotic diseases	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Akron	37,566	32	10.22	....	....	5	3	....										1		6	3	1	16	3	2	.....	3	....	2	1	....	2	1	4	2
*Canton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chillicothe	11,503	13	13.56	....	....	3	3	....												1	.....	.....	8	1	.....	.....	.....	.....	2	2	.....	2	1	.....	2
Cincinnati	338 775	418	14 81	63	34	58	24	4	...	...	...	3	...	...	...	1	...	11	...	77	18	46	247	13	6	19	8	11	23	17	2	47	19	17	46
Cleveland	355,800	346	11.67	60	65	70	45	2	1	...	...	...	1	3	...	...	...	11	1	41	12	15	113	4	1	10	20	14	22	8	1	23	33	19	34
Columbus	121 485	121	11.13	23	11	28	12	...	...	1	...	...	...	...	...	...	...	9	...	24	6	15	44	3	1	3	5	4	9	1	.....	7	13	6	12
Dayton	80 639	84	12.50	12	11	22	19	.....	...	...	...	...	...	...	...	...	...	2	...	9	3	6	38	1	1	2	4	1	5	1	.....	9	9	6	10
East Liverpool	16 444	12	8.76	2	1	4	1	.....	...	...	...	...	...	...	...	...	...	2	...	4	.....	.....	2	.....	.....	.....	.....	.....	1	.....	.....	1	.....	2	1
Findlay	20,000	22	13.20	3	2	4	3	.....	...	...	...	...	...	...	...	...	...	3	1	4	1	4	11	1	1	.....	.....	.....	4	.....	.....	.....	1	.....	.....
Hamilton	21,492	27	15.08	...	...	3	1	.....	...	...	...	...	...	...	...	...	...	1	...	7	1	6	15	.....	.....	1	.....	.....	2	1	.....	3	2	.....	1
Ironton	12,413	12	11.60	1	...	...	...	.....	...	...	...	...	...	...	...	...	...	...	...	3	1	2	3	.....	.....	.....	.....	.....	2	.....	.....	1	5	1	.....
Lima	25,024	18	8.63	3	2	1	.....	.....	...	...	...	...	...	...	...	...	...	...	...	3	.....	3	9	.....	1	1	.....	.....	4	.....	.....	3	4	1	1
Mansfield	16,549	26	19.14	7	1	13	7	.....	1	...	...	...	1	...	1	...	...	3	...	2	.....	2	9	2	1	.....	.....	.....	3	.....	.....	2	2	.....	.....
Massillon	12 749	10	9.42	...	...	3	1	.....	...	...	...	...	...	...	...	...	...	1	...	2	.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
Newark	18,101	27	17.90	5	5	11	7	.....	1	...	...	...	...	...	...	...	...	2	...	4	.....	3	10	.....	2	.....	.....	1	4	1	.....	.....	1	1	.....
Portsmouth	13,089	23	23.08	2	2	3	1	.....	...	...	1	1	...	...	...	...	...	...	...	6	.....	6	5	.....	.....	.....	.....	.....	2	.....	.....	3	2	.....	2
Sandusky	20,256	15	8.80	2	2	7	7	.....	...	...	...	...	...	...	...	...	...	1	...	.....	.....	.....	3	.....	.....	1	.....	.....	.....	.....	.....	1	5	.....	.....
Springfield	41,305	36	10.46	6	6	12	9	.....	2	...	...	...	...	...	...	...	...	...	...	5	3	2	13	2	2	3	.....	2	1	.....	.....	2	6	.....	5
Steubenville	14,240	2	1.69	...	...	...	...	.....	...	...	...	...	...	...	...	...	...	...	...	1	.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tiffin	13,051	16	14.71	5	...	2	2	.....	...	...	...	...	...	...	...	...	...	...	...	2	1	1	5	.....	.....	.....	.....	.....	4	.....	.....	.....	2	.....	.....
Toledo	108 940	111	12.23	22	8	18	9	1	1	...	1	...	...	...	...	...	...	1	...	18	3	10	54	4	.....	.....	7	3	11	1	.....	6	15	6	12
Youngstown	52,618	30	6.84	2	2	8	3	.....	...	...	...	...	...	...	...	...	...	1	...	1	1	.....	18	.....	.....	3	.....	.....	4	.....	.....	3	2	1	4
Zanesville	22 964	29	15.16	2	5	8	6	.....	...	...	...	...	...	...	...	...	...	1	...	3	1	2	12	1	1	.....	.....	2	1	2	.....	3	4	.....	.....
Totals	1,364,703	1,436	12.58	220	165	283	163	7	6	1	5	2	4	...	2	4	...	47	2	221	55	127	638	36	19	47	47	38	106	38	3	120	132	71	132

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF NOVEMBER, 1896.

Cities of less than 10,000 inhabitants. Census 1890.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still-births.
*Alliance																																		
Bellaire	11,291	11	11.69	3	4	2	1									1				2		2	5				1		1		1	2		1
Bucyrus	7 794	6	9.24			3	2											1					3					1						1
Circleville	6,843	6	10 52																	3	1	2	3						2		1			
*Defiance																																		
Delaware	9,142	8	10.50		2	2	2													2	1	1	3					1			1	1		
Fostoria	10,641	7	7.89			3							1			1		1		1		1	3						3					
Fremont	6,451	6	11.19	2	2	1	1													1	1		3	1					1	1		1		
Galion	6,780	8	14.16	1		3	2																4						2			1		
Gallipolis	4,558	8	21.06			2												2					3						2			1	2	1
*Greenville																																		
*Kenton																																		
Lancaster	8 045	3	4.48																				3											
Marietta	10,659	12	13.51	1	3		1													2		2	7		3				1		2	2		
Marion	13,129	18	17.21			7	6											1		4			5		1				1			1	1	1
Martin's Ferry	8,399	5	7.14																															
Middletown	10,533	9	10 24	2	1	3					1									3		3	3						1		2			
Mt. Vernon	6,548	7	12.83		1															2	1	2	2						2			2		1
Norwalk	8,270	6	8.76			1	1													2	1	1	3		1				2			2		
Piqua	11,627	10	10.32		1	4	2											2					2						2			3		
*Pomeroy																																		
*Salem	7.164	11	18 43	5		2					1							1		1			8				1	3	1		3			
*Troy																																		
Urbana	6,699	9	16.19	1	1	2	1		1											2	1	1	4		2				1			1		1
Warren	7,837	6	9.93																	1		1	5	1		1					1			
Washington, C. H	7 358	6	9 79	1	1															2		2	2						2	1		1		1
Wellston	10,932	4	4.39			4	1																											
Wellsville	6,834	7	12.29			4												2		2		1	1											2
*Wooster																																		
Xenia	7 471	8	12.85	1		2														1		1										5		
Totals	194,975	181	10.32	17	16	46	20		1		2		1			3		11	1	32	6	20	72	2	7	1	2	5	21	6		13	21	3	9

*No reports.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING CITIES OF OHIO, DURING MONTH OF DECEMBER, 1896

Cities of 10,000 inhabitants census 1890 or over.	Population estimated.	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhoeal diseases.	Dysentery.	Malarial fevers	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer	Phthisis pulmonalis.	Total local diseases	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births
Akron	37,566	30	9 58	1	2	3	1	....	1	....	....	....	....	....	....	....	....	1	....	3	2	1	19	1	1	2	....	....	7	....	....	5	3	12	5
*Canton	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chillicothe	11,503	15	15.74	....	....	3	2	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	8	....	....	3	....	....	....	....	....	3	1	2	1
Cincinnati	338 775	487	17.25	74	43	78	23	1	2	....	....	5	4	....	....	1	2	15	1	98	17	57	256	16	8	28	9	9	29	16	2	45	23	35	15
Cleveland	355,800	371	12.51	83	60	88	45	....	1	1	1	1	....	....	....	1	....	9	1	65	13	21	153	15	6	12	32	11	12	12	....	32	42	11	32
Columbus	121,485	92	9.08	10	6	7	1	....	....	1	....	....	....	....	....	....	....	5	....	29	1	25	46	3	1	2	5	3	8	1	1	5	....	5	3
Dayton	80,639	68	10.12	9	7	11	8	....	....	....	....	....	....	....	....	....	....	1	....	13	3	8	35	1	1	1	1	....	9	....	....	4	....	2	13
East Liverpool	16 444	18	13.14	4	2	2	1	....	....	....	....	....	....	....	....	....	....	1	....	4	....	4	6	....	....	....	....	....	....	....	....	1	2	1	....
Findlay	20,000	18	10.80	2	4	3	1	....	....	....	....	....	1	....	....	1	....	....	....	6	2	3	6	....	....	1	....	....	1	....	....	1	2	1	....
Hamilton	21,492	17	9.49	5	2	2	1	....	....	....	....	....	....	....	....	....	....	....	....	5	....	5	10	....	1	1	....	....	5	....	....	....	....	....	....
Ironton	12,413	14	13.53	2	1	2	1	....	....	....	....	....	....	....	....	....	....	1	....	3	....	2	3	....	....	....	....	....	2	....	....	1	5	4	2
Lima	25,024	19	9.11	1	....	3	....	....	1	....	....	....	....	....	....	1	....	....	....	7	3	4	1	....	....	....	....	....	1	....	....	....	4	1	....
Mansfield	16,249	11	8.12	3	2	3	3	....	....	....	....	....	....	....	....	....	....	....	....	2	1	1	6	1	....	1	....	....	....	....	....	....	....	....	....
Massillon	12,749	18	17.96	....	....	5	4	....	....	....	....	....	....	....	....	....	....	....	....	5	2	3	5	1	....	....	2	....	....	....	....	....	2	1	....
Newark	18 101	17	11.27	3	1	2	2	....	....	....	....	....	....	....	....	....	....	....	....	2	1	1	10	1	2	....	1	1	2	....	....	3	1	2	2
Portsmouth	13,089	18	16.50	3	....	5	1	....	....	....	....	1	....	....	....	1	....	....	....	2	....	2	7	....	....	1	1	2	2	....	....	1	4	....	3
Sandusky	20,256	26	15 40	5	9	17	14	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	3	....	....	....	....	1	2	....	....	....	4	1	4
Springfield	41,305	50	14.52	5	5	10	6	....	....	....	....	....	....	....	....	....	....	1	....	9	2	6	27	3	3	2	....	6	4	2	....	5	4	....	....
Steubenville	14,240	7	5.89	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	2	1	....	....
Tiffin	13 051	13	11.19	1	....	3	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	7	....	....	....	....	2	3	....	....	....	....	....	....
Toledo	108 940	117	12.89	25	10	15	9	....	....	....	....	....	....	2	....	....	....	4	....	2	2	1	1	14	48	4	....	....	3	10	3	....	4	20	12	13
Youngstown	52,618	30	6 84	2	7	6	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	19	1	....	1	2	....	2	....	....	2	3	....	1
Zanesville	22,961	23	12.02	2	3	8	2	....	....	....	....	....	....	2	....	....	....	1	....	3	2	1	9	....	....	....	....	....	3	....	....	2	3	....	9
Totals	1,364,703	1,479	13.01	241	164	277	131	1	6	2	7	9	4	3	7	2	45	3	284	52	162	689	47	23	52	62	38	105	41	3	118	137	70	145

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES IN THE FOLLOWING CITIES OF OHIO, DURING THE MONTH OF DECEMBER, 1896.

Cities of less than 10,000 inhabitants. Census 1890.	Population (estimated).	Total deaths all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
*Alliance																																			
Bellaire	11,291	15	15.94	4	2	2								1				1		3	1	2	9	1	1	2		1	3				1		
Bucyrus	7,794	5	7.69			1									1								4			1	1	1		1				
Circleville	6,843	13	22.79			4	1		1											3		3	6				1		3	2				
*Defiance																																			
Delaware	9,142	16	21.00	3	2	4	1											1		1			7					1	2	1		2	3		
Fostoria	10 641	5	5 64			1														1		1	3						3					3
Fremont	6,451	8	14.88	1	2	2														2	1	1	1						1					
Galion	6,780	10	17.70		2	5	3					2								1		1	4	1					1					
Gallipolis	4,558	11	28.96			1												1		2	1		8						1		2		1	1
*Greenville																																			
*Kenton																																			
Lancaster	8,045	5	7.46			1	1													2			2				1							4
Marietta	10,659	8	9.00	1		3	1	1	1											2	1	1	1									2		
Marion	13,129	9	8.23			6	2													1			1						1				1	1
Martin's Ferry	8,309	8	11.43																																
Middletown	10,533	15	17.09	1	1															7	1	6	6	2	1			1		2				
Mt. Vernon	6,548	10	18.33	2	1	3														5			5						1	1		2	2		
Norwalk	8,270	9	13 06			3	3													4	2	2	2	1	1									
Piqua	11,627	12	12.39			4	1											2		2		2	2							1				
*Pomeroy																																			
Salem	7,164	7	11.72	3	1	3	2																4	1			1	1	1			2	2		
*Troy																																			
Urbana	6,669	10	17.99	2	1	3	1											1		3		3	3						1	1		1		1
Warren	7,837	5	7.65	1		2	1																2		1							1	1	1
Washington C. H.	7,358	2	3.12																	2			2						1					
Wellston	10,932	7	7.68	3	1	1								1						2		2	3		1			1				1	1	2
Wellsville	6,834	9	15.80			4	2											2		3		2	2						1			1		1
*Wooster																																			
Xenia	7,471	13	10.88			1						1								4			4	1					1			7		1
Totals	194,975	212	13.05	21	13	54	19	1	2			3	1	1	1			8	4	42	7	32	78	6	5	3	4	6	21	9		15	21	6	15

*No report.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING MONTH OF JANUARY, 1896

Villages.	Population (estimated.)	Total deaths, all cases.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ashtabula	12,161	9	8.88	4	1	3	1									1		1					5	1				1				2		1	
Athens	2,756	1	30.48			1																1	1									1			
Bedford	1,255	1	9.56																			1	4												
Bellefontaine	4,389	9	24.55			2				1	1											2	3						2	1			1		
Bellevue	3,745	3	9.61	1		1																1	2		1										
Bridgeport	4,134	4	11.61																			1	2					1				1			
Bryan	3,139	4	15.29			1														1		1	4						1						
Cadiz	1,880	4	25.53																																
Carrhaze	2,400	1	5.00																			1	1												
Cedarville	1,468	4	32.69			1																													
Clyde	2,395	1	5.33			1	1																												
Conneaut	5,723	3	6.39			3																1	2												
Coshocton	4,100	5	14.60	1	1																														
Cuyahoga Falls	2,827	5	21.22																																
De Graff	1,148	1	10.45																																
Delphos	4,997	3	7.20	1		1	1															1	1										1		
East Palestine	1,925	5	31.17		1	2	2									1						1	1												
Ellwood Place	2,500	2	9.60		1																														
Franklin	2,959	2	8.11			1																													
Geneva	2,389	4	20.09																																
Glendale	1,471	1	24.48		1																														
Hartwell	2,064	1	5.81																																
Hicksville	3,010	1	3.99																																
Holgate	1,669	1	7.19		1																														
Jackson	5,353	6	13.45			2		2																											
Kent	3,621	3	9.94																	1															
Lebanon	3,379	1	3.66	1																															
Leetonia	3,001	4	15.98			1	1																												
Loveland	2,913	2	8.24			1										1						1	1						1				1		
Logan	3,458	2	6.94		1				1													1	1												
Lorain	9,492	5	7.59	2	1	1			1													2	4						1			2			
Lynchburg	839	1	14.47			1			1														1												
Manchester	2,363	2	10.19			1														1															

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING MONTH OF FEBRUARY, 1896.

Villages.	Population (estimated.)	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Aberdeen	867	3	41.52			1														1		1	2	2								2			
Ada	2,297	4	20.89																														1		
Anna	794	1	15.11																														1		
Ashtabula	12,161	10	9.77	3	1	2														2		2	5	2							3	1		2
Athens	2,756	3	13.07	1		3																	2												
Bedford	1,255	2	19.12																										2						1
Bellefontaine	4 399	2	5 46																														2		1
Bellevue	3,745	7	22.13			3	3													3		2	1		1									
Bridgeport	4,134	6	17.42			3												1	1																
Brooklyn	5,000	2	4 80																				1						1						1
Bryan	3,139	5	19.11																	3	1	2	1		1					1					
Cadiz	1 880	4	25.53			1												1		1			1									1			
Carthage	2,400																																		1
Cedarville	1.468	2	16.34																																
Clyde	2,:95	5	26.15																	1		1	1									3	1	2	1
Conneaut	5,723	12	25.16	3	2	2													2	1		1	6				1	1				1			
Coshocton	4,199	3	8.76	1																1		1	1												1
Cuyahoga Falls	2 827	3	12.73																				2				1						1		1
Delphos	4,997	2	4.80																				2												1
East Palestine	1,925	4	24.94		1															2		1	1												
Elmwood Place	2 500	2	9.60																	1		1	1												
Franklin	2,959	1	4.06			1										1																			
Geneva	2,389	2	10 04																	1		1	1		1										
Glendale	1.471	1	8.16																				1												
Greenwich	1,0 3	1	11.32	1																			1												
Hartwell	2,064	1	5.81																				1												
Holgate	1,669	3	21.57			2	2																												
Jackson	5,353	5	11.21						1								1			1		1	3									1			2
Kent	3,621	4	13.26			2	2						1										2		1	1									
Lebanon	3 279	6	21 96																	2		1	2		1				1			1	1		
Leetonia	3,004	6	23.97	2		1														1		1	1				1						3		
Lisbon	2,442	5	24.57			1														3	1	1	2						1						
Lockland	2 913	4	16.48	2		1														1			2			1	1								
Logan	3,458	1	3.47															1		1															

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING MONTH OF MARCH, 1896.

Villages.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ashtabula	12,161	7	6.91	1	1	1	1															4	4				1		2				1	
Athens	2,756	8	34.83	2	1	1																1	1											
Bellefontaine	4,399	6	21.84														1			1		2	2		1							1		
Bridgeport	4,134	6	18.35	1		1											1			1		2	2											
Bryan	3,139	7	26.76																			1	1						1					
Cadiz	1,880	4	25.53	1		1	1															1	1											
Carthage	2,400	2	10.00														1			1		1	1			1								
Cedarville	1,498	4	32.68																															
Centerville	1259	6	201.21																			1	1						1					
Clyde	2,295	3	10.46																															
Conneaut	5,723	9	18.87	1		1					1									1		1	1		1									
Coshocton	4,100	2	5.84																			1	1											
Cuyahoga Falls	2,827	3	12.73																			2	2											
Delphos	4,967	5	12.01	1		1														1		3	3			1			1					
Elmwood Place	2,500	1	4.80																			1	1											
Franklin	2,569	2	8.11																			1	1											
Geneva	2,389	5	25.12	1																1		1	1											
Glendale	1,471	1	8.16																			1	1											
Hillsboro	3,813	2	6.19																			1	1											
Hudgate	1,660	1	7.19																			1	1											
Jackson	5,353	10	22.42																			1	1											
Kent	3,621	4	13.25	1		1														1		2	2											
Lebanon	3,279	4	14.64																			1	1											
Leetonia	3,004	2	7.99																			1	1											
Edison	2,482	6	29.49	1																1		1	1											
Loekland	2,913	4	16.48																			1	1											
Logan	3,458	4	13.88																			2	2						1					
Lorain	9,492	13	16.44	2	2	2	2															3	3						2			1	2	
Lyndhurst	729	3	26.05																			1	1						1					
McConnelsville	1,972	4	24.29																			1	1											
Manchester	2,353	2	10.19																															
Marysville	3,984	3	10.64	1		1	1																											
Murray City	2,518	4	19.08																													1		
Nelsonville	5,749	7	14.61	1		1	1													1		2	2		1		1		1			2		1

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING THE MONTH OF APRIL, 1896.

Villages.	Population (estimated).	Total deaths, all causes	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ada	2,397	5	26.10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	1	...	...	...	...	...	...
Archbold	884	1	13.57	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	2	...	...	...	...	1	...	...	...	...	...	...	...
Ashtabula	12,161	11	10.85	...	3	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...
Athens	2,756	2	8.71	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...
Bellefontaine	4,349	7	19.08	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	1	...	...	...	...	...	...	...	1	...	...	...
Bridgeport	4,134	6	17.42	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	1	...	...	...	...	...	...	...	...
Bryan	3,139	2	7.65	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carthage	2,400	1	5.00	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Cedarville	1,168	2	16.34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Centerburg	740	2	132.43	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clyde	2,905	9	20.92	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Conneaut	5,723	5	10.48	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Coshocton	4,100	5	14.60	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deerfield	1,148	2	20.90	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delphos	9,677	5	12.01	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Elmwood Place	2,500	3	14.40	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Franklin	2,959	3	12.18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Geneva	2,390	5	25.11	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glendale	1,471	2	16.32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Hillsboro	3,873	2	9.30	...	...	2	2	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jackson	5,353	6	13.45	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	1	...
Kent	3,621	6	19.90	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Lebanon	3,579	1	3.66	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Leetonia	3,004	5	19.90	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	...
Lisbon	2,442	4	19.69	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Lockland	2,913	3	12.36	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Logan	3,438	6	20.93	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Lorain	9,482	16	20.23	4	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	2	...	...	...	1	...	1	...	...
Lynchburg	859	1	14.47	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
McClure	332	3	10.84	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Manchester	2,353	21	10.19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Murray City	2,518	4	19.06	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nelsonville	5,749	6	12.74	1	...	3	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...
New Philadelphia	5,572	8	17.22	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING MONTH OF MAY, 1866.

Villages	Population (estimated.	Total deaths, all causes.	Annual rate per cent.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ada	2,297	2	10.44	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	1	...	...	...	...	...	...
Ashtabula	12,161	10	9.77	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	4	...	1	...	...	...	1	...	...	1	3	...	...
Athens	2,756	3	13.07	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...
Bedford	1,255	2	19.12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	1	...
Bellefontaine	4,369	7	19.08	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	4	2	...	1	...	...	...	1	...	...	...	...	...
Bridgeport	4,134	3	8.71	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Berea	3,139	4	11.49	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1	3	...	...	...	...	...	...	...	...	...	...	...	...
Carthage	2,400	4	20.00	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Cedarville	1,498	2	16.34	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Centerburg	740	1	16.22	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clyde	2,395	5	26.19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Conneaut	5,728	6	12.58	1	...	2	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	1	4	...	1	...	...	...	...	...	...	...	2	...	...
Coshocton	4,109	6	17.52	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cuyahoga Falls	2,827	8	12.73	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
De Graff	1,148	2	20.90	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delphos	4,997	21	4 80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	2	...	...	...	...	...	...
Elmwood Place	2,500	26	26.40	2	1	2	...	1	...	...	...	...	...	...	...	...	...	...	...	1	2	...	4	...	...	...	...	...	...	1	...	...	1	...	3
Frankfort	750	1	16.00	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Franklin	2,959	3	12.18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...
Geneva	2,389	3	15.07	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Glendale	1,471	2	16.32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Greenwich	1,060	2	22.64	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Hartwell	2,064	2	5.81	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
Hillsboro	3,873	2	6.19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Holgate	1,669	2	14.38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...
Jackson	5,353	7	15.09	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	...	...	...	...	3	...	...	...	...	...	...	...
Kent	3,671	3	9.94	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	1	...
Lebanon	3,279	1	3 66	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Leetonia	3,004	2	7.99	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lockland	2,913	3	12.36	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	1	...	...	...	...	1
Logan	3,458	3	10.41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...	...
Lorain	9,492	9	11.38	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lynchburg	829	1	14.47	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Manchester	2,353	4	20.38	...	...	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	1	...

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Mingo Junction	2,408	1	4.99																		1					1						
Murray City	2,518																														2
Napoleon	2,615	1	4.59																		1						1				
Nelsonville	5,749	4	8.35			1		1									1		1	1	1										1
New Philadelphia	5,572	7	15.08			1							1				1		1	1						1			3	1	
North Amherst	1,715	7	48.99			1										1				4					1	2		1	4	2	
Norwood	7,500	8	12 80	1	1	2											1			3	2									2	
Oberlin	5 238	1	2.29																												
Orrville	1,993	2	12.04														2		2												
Painesville	5 404	6	13.32														1		1	3			1				1		1	1	
Ravenna	3,433	3	10.49																	3	1							1	1		
Reading	3,388	3	10.62			3	2										1		1	1						1					1
Shawnee	3,605	3	9.99			1	1																								
Shelby	2,043	2	11.75														1		1										1		
Sidney	5,468	2	4.40			2						1				1															
South Charleston	1,112	1	10.79	1													1		1									1			
St Bernard	2 481	4	19.35			3		2																						1	
Tippecanoe City	1,496	1	8.02			1																									
Uhrichsville	4,655	3	7 73														2		2												
Union City	1,404	2	16 80		1	1						1					1	1													1
Utica	802	1	14 96																											1	
Wapakoneta	4,247	4	11.30	1																4					1	1		2			
White House	480	1	25.00														1		1												
Wilmington	3,298	6	21.84			1											1		1	2						2				2	
Wyoming	1,700	1	7.06														1		1												1
Totals	191,441	172	10.78	14	10	38	8	7				2	1		1	1		4	3	29	2	26	70	8	5	2	5	5	18	5	1	14	17	16	14

The following villages report no deaths during June: Centerburg, Hillsboro, New Straitsville, Summerfield.

ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING MONTH OF JULY, 1866.

Villages.	Population estimated.	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ada	2,379	2	10.44																																
Ashley	735	1	16.33		1							1																								
Ashtabula	12,161	10	9.77	4		4		2																											
Athens	2,756	2	84.84	1		1													1																
Bellefontaine	3,269	1	30.00																			1	1												
Bryan	3,139	2	7.65																																
Carthage	2,400	2	15.00																																
Cedarville	1,408	2	24.51	2																															
Clyde	2,295	2	10.46		1								1																						
Conneaut	5,723	2	16.36	1		1		1											1			1	1												
Coshocton	4,109	6	17.52	1					1																										
Cuyahoga Falls	2,827	5	21.22																			1	1												
De Graff	1,148	1	10.46	1		1		1																											
Delphos	4,997	2	4.80	1								1																							
East Palestine	1,925	1	6.21																																
Elmwood Place	2,500	3	14.40																																
Frankfort	750	1	16.00		1	1	1																												
Franklin	2,959	5	20.30			1		1														1	1												
Geneva	2,969	2	10.04																																
Glendale	1,471	2	16.32																			1	1												
Greenwich	1,090	2	22.64																																
Grover Hill	800	2	30.00																			1	1												
Hicksville	3,010	3	7.98			1		1																											
Jackson	5,353	3	17.06			1			1													1	1												
Kelley's Island	1,500	1	8.00		1	1		1																											
Kent	3,624	4	13.26																																
Lebanon	3,279	5	18.30			2						2																							
Leetonia	3,004	3	11.98																			1	1												
Lisbon	2,442	4	19.64																1																
Lockland	2,913	2	16.47	1		1		1														2	2												
Logan	3,158	5	17.35			2			1																										
Lorain	9,492	8	10.12	2		2			1																										
Manchester	2,353	3	15.29																			2	2												
Marysville	3,384	3	10.64	2		1																													

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO DURING MONTH OF AUGUST, 1866.

Villages.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ada	2,297	9	46.98	...	2	2	...	2	...	...	...	...	...	...	...	...	...	...	...	4	1	2	1	...	...	...	...	...	...	...	...	1	2	...	...
Ashley	735	1	16.33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	1	...	...	...	...	...	1	...	...	...	1	...	1
Ashtabula	12,261	16	15.79	5	1	5	...	4	...	...	...	...	...	...	...	...	...	...	...	2	1	...	5	2	...	...	...	...	1	...	...	...	...	3	...
Athens	2,756	5	21.84	...	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Bellefontaine	4,399	8	21.84	...	...	2	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...	...	2	1	...	...	...	...	1	...	...	...	...	...	...
Bridgeport	4,134	3	9.19	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	2	...	...	1	...	...	1	...	...	...	...	...	...	1	...	...
Bryan	3,139	4	15.30	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...
Carthage	2,400	2	10.00	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
Cedarville	1,468	3	24.51	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Centerburg	740	2	32.13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clyde	2,365	3	10.45	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...
Conneaut	5,723	9	18.87	...	...	1	...	1	...	...	...	...	...	...	...	...	2	...	...	3	...	...	4	2	...	...	...	...	1	...	...	...	...	...	...
Coshocton	4,109	6	17.52	...	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...
Cuyahoga Falls	2,827	5	21.23	...	1	2	...	...	...	...	1	...	...	...	...	...	...	...	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Delphos	4,067	4	9.66	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
East Palestine	1,925	3	18.72	1	...	2	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...	...	...	...	...	...	...	1	...	...
Elmwood Place	2,500	4	19.20	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Felicity	652	1	18.40	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Franklin	2,959	5	20.30	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Geneva	2,389	2	10.04	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Girard	3,000	3	12.00	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glendale	1,471	1	32.04	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Green Spring	1,047	3	34.39	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Hartwell	2,064	1	5.81	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hicksville	3,010	8	31.92	...	...	2	...	2	...	...	...	1	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Holgate	1,079	5	35.95	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jackson	5,853	13	29.14	2	1	5	...	1	...	...	...	...	...	...	...	...	...	2	...	3	1	...	5	...	...	1	...	...	2	1	...	...	1	...	...	...
Kent	3,821	1	3.92	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lebanon	3,279	2	7.32	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Leetonia	3,004	1	3.99	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lisbon	2,442	2	9.82	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Lockland	2,913	7	25.84	...	2	5	...	...	...	...	3	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Logan	3,458	1	3.47	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Lorain	9,492	18	22.75	7	1	5	...	1	4	...	...	...	...	...	...	...	...	...	...	5	1	1	3	...	...	...	...	...	...	1	...	...	5	...	2

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO DURING MONTH OF SEPTEMBER, 1896.

Villages.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fever.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ada	2,207	1	5.32																																
Adena	735	3	48.96																		1		1													
Adrian	12,161	2	1.07	1	1																														
Albany	2,736	4	17.42			1		1																											
Bedford	1,255	3	20.72																																
Bellefontaine	4,366	4	10.92	1	1	1	1											1			1	1	1	1											
Bridgeport	4,134	3	9.19			1			1																										
Brooklyn	5,000	3	6.12																																
Bryan	3,130	4	15.30			2	1					1									1														
Carthage	2,400	4	20.00					1		1																									
Cedarville	1,468	1	8.17	1																															
Celina	5,295	8	41.84			2				1																									
Centerburg	5,723	8	16.77			2	1																												
Chesterville	4,109	4	11.68	2	2	1	1																												
Circleville	7,827	4	13.44			1				1					1																				
Clarksville	1,148																																		
Delphos	4,967	7	16.80	1	1	6	4										1																		
East Palestine	1,925	5	31.17			2	2																												
Ellsworth Place	2,541	1	4.80			1	1																												
Frankfort	750	3	48.00																																
Franklin	2,959	5	20.30			4	4																												
Geneva	2,880	4	20.08	1		1	1																												
Germantown	582	4	206.01			10	1																												
Gibsonburg	1,471	2	16.32																																
Hicksville	3,873	1	3.09																																
Hillsboro	1,049	8	31.57			1															1		1												
Jackson	5,353	11	34.66			10	5			1																									
Kent	3,021	7	38.19																																
Lebanon	3,370	6	11.13			2																													
Lewisburg	3,004	6	23.97	1	1	2	2																												
Lisbon	2,142	4	19.64	2	1	2	2																												
Lorain	3,458	6	20.82			2	2																												
Loudonville	4,962	7	8.65			1	1																												
Lynchburg	859	1	14.47																																

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING MONTH OF OCTOBER, 1896.

Villages.	Population (estimated).	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fever.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Brights disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ada	2,397	2	10.44				1																1									1			
Archbold	884	1	13.57																																
Ashley	735	2	32.65																																
Ashtabula	12,171	14	13.82	1	1	1															1		3				2					1			
Athens	2,754	3	13.07	1	1	2		1																		1			1			1		2	
Bellefontaine	1,256	2	19.12						1													1	1		1										
Bellevue	4,499	7	19.05				1																2									1			
Bidgeport	4,134	5	11.61			1	1																2												
Bryan	3,139	2	7.65																																
Cambridge	5,560	12	25.76	2		2	2													1			3					1				2			
Canneiville	300	1	60 00																																
Carthage	2,400			1	1	1	1																												
Carthage	2,464																																		
Cedarville	682	1	8.17																																
Charlestown	2,265	6	106.57			6	1							5																					
Clyde	2,265	4	20.62			1			1											1			1												
Conneaut	5,423	3	6.39	1	1	1																													
Coshocton	4,100	3	8.78	1	1																														
Cuyahoga Falls	2,827	5	21.22			1										1						1	2												
De Graff	1,144	2	20.90			1	1										1						1												
Delphos	4,967	6	14.40	1		3	2																1												
East Palestine	1,625	1	6.24																																
Elmwood Place	2,500	3	14.40	2		1		1															2									2			
Felicity	652	1	36.81																																
Fernbank	400	1	30.00																																
Frankfort	750	1	16.00				1																1				1								
Franklin	4,100	3	15.07	1		1																							2						
Geneva	3,000	2	8.00																																
Girard	1,471	1	8.16																													1			
Glendale	2,084	2	11.62																																
Hartwell	4,673	3	18.54																																
Hillsboro	1,408	2	28.76																																
Holgate	1,167	2	20.56																																
Home City	5,363	2	15.00			2	2																1									1			
Jackson		1				1																													

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ABSTRACT OF THE REPORTS OF DEATHS, AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO, DURING MONTH OF NOVEMBER, 1896.

Villages.	Population (estimated.)	Total deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year.	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhœal diseases.	Dysentery.	Malarial fevers.	Measles.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total devopmental diseases.	Total violence.	Premature and still births.
Ada	2,297	3	15.67	1		3	2																												
Ashtabula	12,161	36	7.89			1		1													1	2	3					1						1	
Athens	2,756	2	8.71																			1	1												
Barberton	3,000	4	16.00																																
Bedford	1,255	1	9.56																																
Bellefontaine	4,369	8	21.84			4	2											1				1	3			1			1					1	
Bridgeport	4,134	2	7.51			1	1																1												
Brooklyn	5,040	2	4.80			1	1																1						1						
Bryan	3,139	5	19.11																																
Caledonia	847	6	70.84			1	1															1	4												
Cambridge	5,500	10	21.47			4	3	1														4	2										2	1	
Carthage	2,400	6	25.01																																
Catawba	1,496	1	41.99			1	1																1												
Cedarville	1,168	5	40.87																																
Centerburg	740	1	16.22																																
Clyde	2,295	2	10.46																																
Conneaut	5,723	2	4.19	1	1	1	1															1	2						1						
Coshocton	4,169	5	14.60	1	1																													1	
Cumberland	656	1	18.39																																
Cuyahoga Falls	2,827	4	16.99																																
Delphos	4,997	4	9.60	2		4	2											1																2	
East Palestine	1,925	3	18.70																			1													
Elmwood Place	2,580	6	28.80			2																	1											1	
Felicity	652	1	18.40	1																															
Frankfort	752	1	15.96																																
Franklin	2,959	4	16.22			1	1											1					1												
Girard	3,000	1	4.00	1																															
Glendale	1,171	1	8.16																																
Greenwich	1,160	2	22.64			1		1										1					1												
Hartwell	2,064	1	5.81																																
Hillsboro	3,873	3	9.57																			1	1										1		
Jackson	5,853	7	15.88			2																	2					1	1						
Kelleys Island	1,500	1	8.00																																
Kent	3,621	6	19.90	1		3												1			1		2				1								

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ABSTRACT OF THE REPORTS OF DEATHS AND THEIR CAUSES, IN THE FOLLOWING VILLAGES OF OHIO DURING MONTH OF DEC. 1896.

Villages.	Population (estimated).	Totals deaths, all causes.	Annual rate per 1,000.	Total under one year.	Total under five years and over one year	Total zymotic diseases.	Croup and diphtheria.	Cholera infantum.	Cerebro-spinal meningitis.	Cholera morbus.	Diarrhoeal diseases.	Dysentery.	Malarial fevers.	Measels.	Puerperal fever.	Scarlet fever.	Tonsilitis.	Typhoid fever.	Whooping cough.	Total constitutional diseases.	Cancer.	Phthisis pulmonalis.	Total local diseases.	Apoplexia.	Bright's disease.	Bronchitis.	Convulsions.	Gastritis and peritonitis.	Heart disease.	Meningitis.	Pleurisy.	Pneumonia.	Total developmental diseases.	Total violence.	Premature and still births.
Ada	2,397	1	5.22																																
Archbold	2,764	2	9.84																																
Ashtabula	12,161	8	7.89		1																														
Athens	12,756	4	17.42	2		1																													
Barberton	3,000	2	8.00															1		1															
Bedford	1,355	2	19.12																				2			1			1						
Bellefontaine	4,399	7	19.09			2	1	1															2										1		
Bridgeport	4,134	2	5.81																				2							1		1	2		1
Brooklyn	5,000	1	2.40																				1									1			
Bryan	3,139	4	15.29	1																			1												
Cambridge	5,560	6	12.98	2		1	1													1		1	4						1			1			
Carthage	2,401	4	20.00																			1	1												
Cedarville	1,488	5	40.87		2																														
Clyde	2,395	4	20.02			1																													
College Hill	1,927	3	18.70			1																													
Coshocton	4,109	5	14.60																			1	1												
Cuyahoga Falls	2,827	3	12.73																				1												
De Graff	1,147	1	10.46																				1												
Delphos	4,997	4	9.60	1						1													1												
East Palestine	1,925	3	18.70		1																		1												
Elwood Place	2,500	5	24.00		1	1	1																1												
Felicity	602	3	55.50			1																1	1												
Franklin	2,989	4	16.32																				1										1		
Frankfort	750	1	15.96																				1												
Geneva	2,389	6	30.14			1																	4					2	1				1		
Glendale	1,471	1	8.16																				1												
Greenwich	1,080	2	22.64																				2			1									
Hartwell	2,004	2	11.62																				2						1						
Hillsboro	3,873	1	3.10		1			1															1												
Jackson	5,358	7	15.88															1		1			1					1				1			1
Kent	3,621	3	9.94			1																	1												
Laura	300	1	40.00			1	1																1												
Lebanon	3,279	2	7.32																			1	1												
Leetonia	3,004	3	19.99	1		1																	1												

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Summary of Mortality Reports.

The total number of deaths reported from all causes—excluding premature and still-births—by the towns represented in the foregoing tables was 23,794. The average estimated population of the cities and towns represented was 1,753,992, which is equal to an annual death rate of 13.57 per thousand living population represented.

The deaths in 1,406,434 living population in 1895 were 24,717, equal to an annual death rate of 17.57 per thousand; while in 1894 the total number of deaths reported in 1,372,133 population was 23,993, equal to a mortality rate of 17.48 per thousand.

The number of deaths reported each month was as follows:

January	2,065	July	2,309
February	1,983	August	2,137
March	2,111	September	1,889
April	2,032	October	1,950
May	1,749	November	1,829
June	1,832	December	1,908

The greatest number of deaths (2,309) was reported in July; the least number (1,749) in May.

DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.

The number of deaths reported of children under five years of age (premature and still-born excluded), was 6,776, which is equal to 29 per cent. of the deaths from all causes, and a death rate of 3.87 per thousand population represented. The death rate of children under five the preceding year was 5.08 per thousand population represented.

The deaths by months, of children under five, were as follows:

January	504	July	909
February	483	August	766
March	555	September	570
April	519	October	515
May	427	November	457
June	599	December	367

The greatest number of deaths reported in children under five (909) was in July; the least number (367) was in December.

ZYMOTIC DISEASES.

The total number of deaths reported from zymotic diseases was 4,722, which is equal to 19 per cent. of the deaths reported from all causes, and an annual rate of 2.7 per thousand of the population represented.

The number of deaths reported the preceding year from zymotic diseases was 4,676, equal to a death rate of 3.32 per thousand population represented.

The number of deaths reported from zymotic diseases each month was as follows:

January	339	July	649
February	301	August	583
March	303	September	476
April	317	October	437
May	223	November	391
June	328	December	375

The month having the greatest number reported (649) was July the one having the least (223) was May.

CROUP AND DIPHTHERIA.

The total number of deaths reported from croup and diphtheria was 1,162, which is equal to 4.9 per cent. of the deaths reported from all causes, and a death rate of .7 per thousand of the population represented.

The number of deaths reported the preceding year from these causes was 864, equal to a mortality rate of .62 per thousand of the population represented.

The number of deaths reported each month from croup and diphtheria was as follows:

January	81	July	35
Feburary	68	August	41
March	58	September	132
April	53	October	244
May	31	November	216
June	32	December	171

The month having the greatest number reported (244) was October; the one having the least number (31) was May.

CHOLERA INFANTUM, CHOLERA MORBUS AND DIARRHŒA.

The total number of deaths reported from cholera infantum, cholera morbus and diarrhœa was 1,088, which is equal to 4.6 per cent. of the deaths reported from all causes, and a mortality rate of .62 per thousand population represented.

The number of deaths reported the preceding year from these causes was 1,321, which is equal to a mortality rate of .93 per thousand of the population represented.

The deaths, as represented by months, were as follows:

January	18	July	389
February	18	August	284
March	17	September	106
April	24	October	37
May	36	November	18
June	124	December	17

The month having the greatest number reported (389) was July; the months having the least (17) were March and December.

MEASLES, SCARLET FEVER AND WHOOPING COUGH.

The total number of deaths reported from measles, scarlet fever and whooping cough was 308, which is equal to 1.3 per cent. of the total number of deaths reported from all causes, and a mortality rate of .18 per thousand of the population represented.

The total number of deaths reported from these diseases during the preceding year was 547, equal to a mortality rate of .39 per thousand population represented.

The deaths, as reported by months, were as follows:

January	36	July	33
February	41	August	36
March	47	September	28
April	74	October	24
May	31	November	18
June	35	December	23

The month in which the greatest number of deaths was reported (74) was April; the least number (18) was reported in November.

TYPHOID FEVER.

The total number of deaths reported from typhoid fever was 767, which is equal to 3.2 per cent. of the total number reported from all causes, and a mortality rate of .44 per thousand population represented.

The number of deaths reported from this cause the preceding year was 776, equal to mortality rate of .55 per thousand living population represented.

The number of deaths from typhoid fever, as reported by months, was as follows:

January	73	July	49
February	60	August	89
March	60	September	106
April	48	October	82
May	46	November	65
June	32	December	57

The greatest number of deaths (106) was reported in September; least number (32) in June.

CONSTITUTIONAL DISEASES.

The total number of deaths reported from constitutional diseases was 4,193, which is equal to 17.6 per cent. of the deaths reported from all causes, and a mortality rate of 2.4 per thousand population represented.

The number of deaths reported from constitutional diseases the preceding year was 4,437, equal to a mortality rate of 3.15 per thousand population represented.

The number of deaths, as reported by months, was as follows:

January	393	July	347
February	387	August	336
March	398	September	328
April	394	October	293
May	339	November	282
June	334	December	362

The greatest number of deaths (398) was reported in March; the least number (282) was reported in October.

CANCER.

The total number of deaths reported from cancer was 745, which is equal to 3.1 per cent. of the deaths reported from all causes, and a mortality rate of .42 per thousand population represented.

The number of deaths reported from this cause the preceding year was 830, equal to a mortality rate of .59 per thousand population represented.

The deaths, as reported by months, were as follows;

January	73	July	56
February	72	August	51
March	63	September	65
April	68	October	59
May	54	November	63
June	54	December	66

The month having the greatest number reported (73) was January; the months having the least (51) was August.

CONSUMPTION.

The total number of deaths reported from consumption was 2,637, which is equal to 11.11 per cent. of the deaths reported from all causes, and a mortality rate of 1.50 per thousand population represented.

The number of deaths reported from this cause the preceding year was 2,871, equal to a mortality rate of 2.04 per thousand population represented.

The number of deaths, as reported each month, was as follows:

January	257	July	213
February	249	August	212
March	278	September	183
April	249	October	170
May	231	November	170
June	211	December	214

The greatest number of deaths was reported in March (278), the least number (170) in October and November.

LOCAL DISEASES.

The total number of deaths reported from all local diseases was 10,074, which is equal to 42.23 per cent. of the deaths reported from all causes; and a mortality rate of 5.74 per thousand population represented.

The number of deaths reported from all local diseases the preceding year was 11,055, equal to a mortality rate of 7.86 per thousand population represented.

The deaths, reported by months, were as follows:

January	977	July	839
February	908	August	798
March	975	September	689
April	1 010	October	785
May	777	November	787
June	771	December	758

The month having the greatest number of deaths reported (1,010) was April; the one having the least number (680) was September.

BRONCHITIS, PLEURISY AND PNEUMONIA.

The total number of deaths reported from bronchitis, pleurisy and pneumonia was 2,478, which is equal to 11.41 per cent. of the deaths reported from all causes, and a mortality rate of 1.41 per thousand of the population represented.

In the preceding year there were 2,014 deaths reported from these causes, equal to a mortality rate of 1.17 per thousand population represented.

The deaths as reported by months were as follows:

January	314	July	139
February	277	August	114
March	308	September	120
April	366	October	147
May	176	November	210
June	155	December	314

The month in which the greatest number of deaths was reported was January (314); the least number (114) was reported in August.

CONVULSIONS AND MENINGITIS.

The total number of deaths reported from convulsions and meningitis was 1,074, which is equal to 4.99 per cent. of the deaths reported from all causes, and a mortality rate of .61 per thousand population represented.

The number of deaths reported from these diseases the preceding year was 1,714, equal to a mortality rate of 1.00 per thousand population represented.

The deaths reported by months were as follows:

January	170	July	141
February	138	August	136
March	171	September	68
April	179	October	111
May	141	November	70
June	174	December	124

The greatest number of deaths was reported in April (179); the least number (68) in September.

DEVELOPMENTAL DISEASES.

The total number of deaths from developmental diseases reported (excluding premature and still-births) was 2,106, which is equal to 8.81 per cent. of the deaths reported from all causes, and a mortality rate of 1.2 per thousand population represented. During the preceding year there were 2,138 deaths reported from developmental diseases, equal to a mortality rate of 1.52 per thousand population represented.

The deaths, as reported by months, were as follows :

January	184	July	185
February	245	August	159
March	204	September	171
April	154	October	169
May	144	November	165
June	141	December	185

The greatest number of deaths (245) was reported in February ; the least number (141) in June.

PREMATURE AND STILL-BIRTHS.

The total number of premature and still-births reported was 1,942, which is equal to 8.16 per cent. of the deaths reported from all causes, and a rate of 1.11 per thousand population represented.

During the preceding year there were 1,858 premature and still-births reported, equal to a rate of 1.32 per thousand population represented.

The premature and still-births, as reported by months, were as follows :

January	180	July	149
February	170	August	158
March	186	September	147
April	161	October	142
May	163	November	155
June	149	December	182

The greatest number (186) was reported in March; the least number (142) was in October.

VIOLENCE

The total number of deaths reported from violence was [illegible] which is equal to [illegible] per cent of the deaths reported from all causes, and a mortality rate of [illegible] per thousand population represented.

During the preceding year there were [illegible] deaths reported from violence, equal to a mortality rate of [illegible] per thousand population represented.

The deaths, as reported by months, were as follows:

January	[illegible]	July	[illegible]
February	[illegible]	August	[illegible]
March	[illegible]	September	[illegible]
April	[illegible]	October	[illegible]
May	[illegible]	November	[illegible]
June	[illegible]	December	[illegible]

The greatest number of deaths was reported in July [illegible], the least number [illegible] in March.

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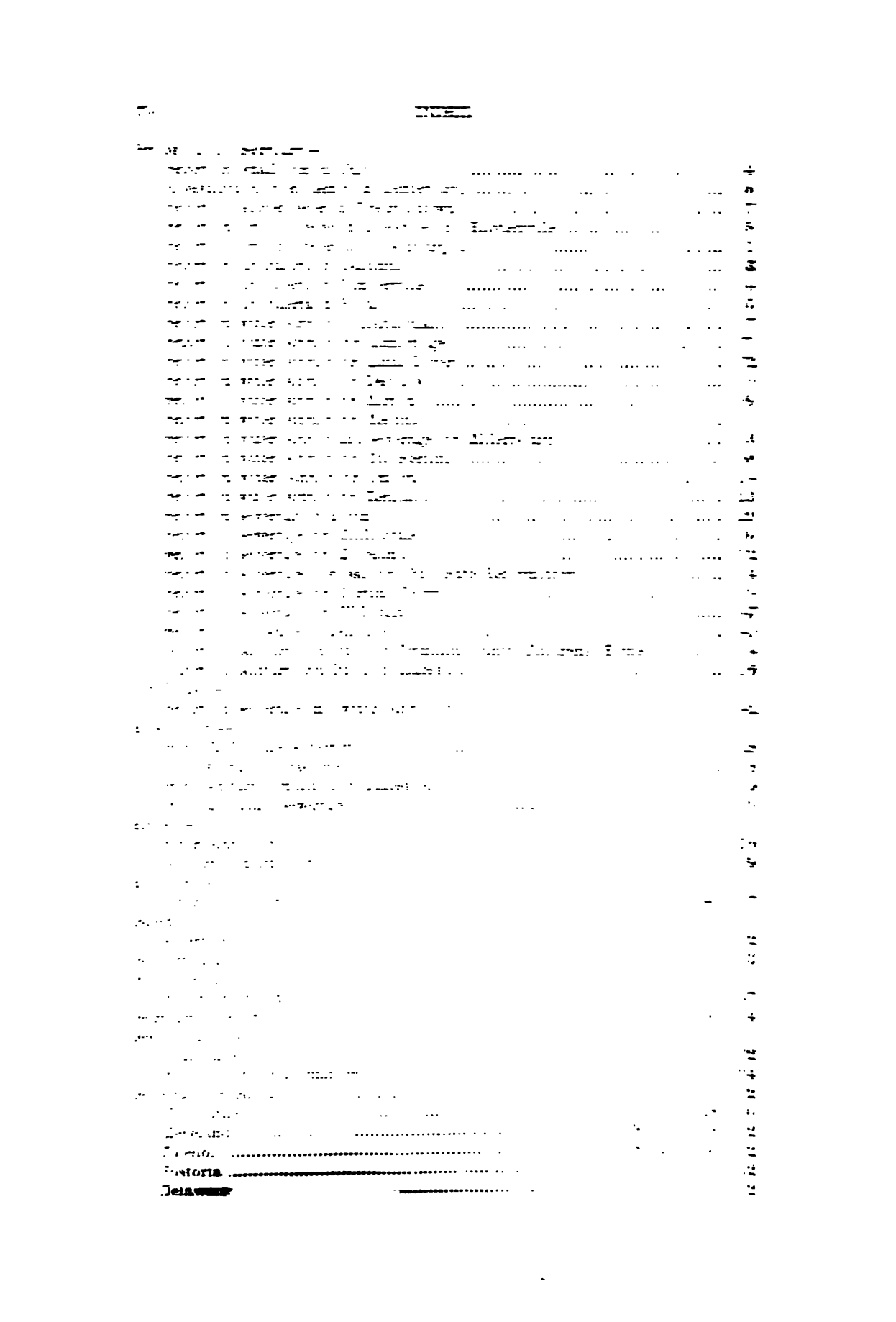

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PROCEEDINGS

OF

SEVENTH ANNUAL MEETING

OF THE

STATE BOARD OF HEALTH

AND

Local Boards of Health of Ohio

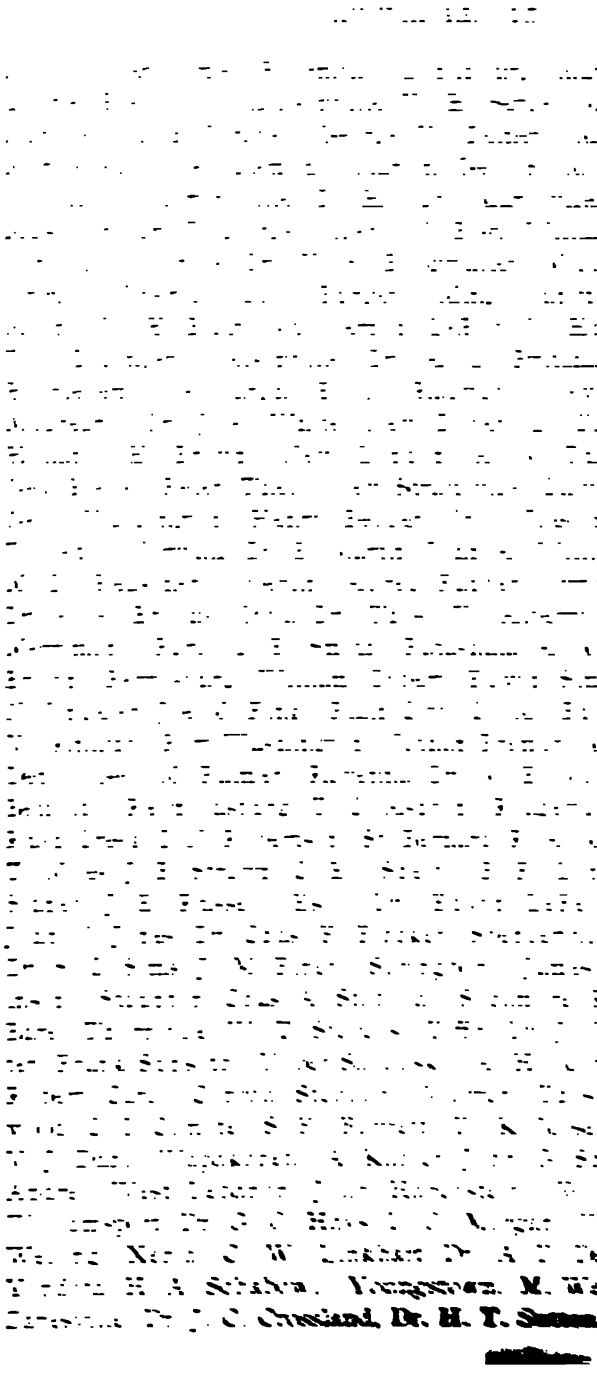
HELD IN

Columbus, O., January 21 and 22,

1897.

List of Registered Delegates.

Akron, Dr. G. M. Todd; Alvada, W. R. McPherson; Arcanum, S. P. Albright; Ashtabula, William Smith, J. W. Robinson; Athens, W. M. Kurtz; Avondale, John Daugherty; Baltimore, Douglas A. Weakley; Basil, John V. Tussing; Beach City, J. M. Ramsey; Bellaire, Dr. D. W. Boone; Bellefontaine, Dr. C. W. Heffner; Bloomingburg, James Whitesides, R. G. Andrews; Briggsdale, Hiram Benjamin; Bucyrus, Dr. W. A. Daugherty, L. F. Heinlein; Caldwell, Dr. O. O. McKee; Caledonia, H. E. Decker; Cambridge, I. A. Oldham; Canal Fulton, George Becker; Canton, Josiah Hartzell; Cardington, D. J. Donavin; Carthage, R. C. Phillips; Cheviot, R. R. Conger; Chicago, Dr. D. H. Young; Chillocothe, Dr. C. S. McCafferty; Cincinnati, Dr. Byron Stanton, Dr. J. W. Prendergast, Henry Reiners; Clifton, Dr. D. E. Spahr; Columbus, Dr. T. C. Hoover, Dr. D. N. Kinsman, Neville Williams, A. F. Smetz, C. A. Ford, John W. Slyh, J. W. Garrett; Coshocton, J. E. Foster, Corwin McCoy, Dr. J. G. Carr, T. B. Hack; Cleveland, Dr. William T. Miller; Covington, George Flammer; Cuba, W. H. Moon; Curtice, B. E. Moses, Willis E. Clark; Dalton, Thomas Reed, L. C. Davisson; Defiance, Dr. P. H. Aldrich, L. K. Miller; De Graff, Dr. L. D. Craig; Deleware, J. F. Shaffer, N. Wagner, H. S. Breyfogle; Delta, W. Ramsey; Dent, Fayette M. Wood; Dodson, Jessie Boomershine; Dresden, Samuel Dorsey, John F. Poorman, A. R. Little; East Greenville, John L. Walter; East Toledo, Henry Lalendorff; Edenton, John B. Doughman; Elyria, P. G. Olds; Euphemia, Henry Chambers; Evanston, James A. Lawrence; Findlay, Amos Beardsley, Dr. P. F. Baker, P. S. Shoupe; Forest, Peter Z. Berlin; Fostoria, W. H. Fitzsimmons, J. O. Hess, J. T. Hale; Galion, A. Brokaw, I. A. Laughlin; Granville, E. Sinnett; Green Camp, Dr. G. E. Lingle, C. L. Patten; Greenville, L. F. Limbert; Hamilton, A. J. Warndorf, Dr. J. S. H. Potter; Harrod, G. P. Leatherman; Hartville, C. R. Geidlinger; Hepburn, Dr. J. M. Wood; Jacksontown, Geo. L. Swartz; Jersey, Dr. S. S. Richards; Johnstown, Dr. C. A. Burke; Kent, L. G. Reed; Kenton, William Elcester, P. V. Wagner, J. W. Wood; Lancaster, Dr. J. P. Hershberger; Larue, E. Anderson; Leetonia, Dr. H. B. Kurtz; Lima, Dr. R. D. Kahle, Dr. L. F. Laudick, C. F. Stolzenbach, H. N. Durnbaugh, A. J. Driver, J. F. Hauenstine, T. B. Bowersock, Wilbur Fisk; Lockbourne, E. M. Earhart; Lockland, M. Guth; London, Dr. J. F. Kirkpatrick; Lorain, Dr. S. S. Cox; Lucas, C. J. Staatts,



REPORT OF PROCEEDINGS

OF THE

Seventh Annual Meeting of Ohio Boards of Health

HELD AT

COLUMBUS, OHIO, JANUARY 21 AND 22, 1897.

The convention of Boards of Health of Ohio was called to order at 1:30 o'clock p. m. in the auditorium of the Y. M. C. A. bulding, January 21, 1897, by President W. T. Miller of Cleveland, who said:

Gentlemen of the Convention: Owing to the unavoidable absence from the city of the governor we will be compelled to omit the first part of the program, and proceed with the regular order of business, which is the third paper, "The Tuberculin Test for Tuberculosis in Milch Cows," by Professor David S. White of the Ohio State University. I have the pleasure of introducing to you Professor White.

THE TUBERCULIN TEST FOR TUBERCULOSIS IN MILCH COWS.

BY DAVID S. WHITE, D. V. M.

Heretofore, in dealing with such chronic contagious dieases in our domesticated animals, as for instance, glanders in the horse or tuberculosis in cattle, we have been considerably hampered by not being able at all times to recognize them in their latent, hidden forms. All that modern developments have given us in the way of special instruments and mechanical devices to help us determine the presence of disease in inavailable organs in the animal body, have been only useful in a small percentage of instances. Especially in our animals is physical diagnosis difficult in chronic hidden diseases. Although in more pronounced cases auscultation (the stethescope), and percussion (the hammer), the irregularity in blood temperature (thermometry), and more rarely the pulse, may tell us that there is lurking within a lung a nest of contagion, in by far a greater number, no one, if his five senses be ever so acutely developed, can discover its presence.

The disease tuberculosis, the diagnosis of which I shall treat briefly today, usually presents itself in a latent form. It is a slow wasting disease; "a pestilence that walketh in darkness," and as a venerable and

esteemed colleague rightly says: "Often under an outward guise of health the subject of the disease carries around germs of death to his unsuspecting and more susceptible fellow." The very propagation of tuberculosis seems to depend upon its latency. Acute diseases in our cattle, like anthrax or Texas fever, present a bold front, manifest well marked symptoms, the victims soon succumb; hence well directed veterinary police measures can readily and comparatively easily cope with them and crush them out.

To effectually stamp out forever any infectious disease we must seek its source. To destroy the source must be to destroy the disease. In consumption of our cattle the source of the disease (the germ), is already harbored in an infected animal. One may possess a perfectly healthy herd of dairy cattle, he may introduce into this herd an apparently sound cow which may carry in its lungs a few tubercular nodules, the presence of which no expert could unearth. This infected animal can, however, transmit the germ to those standing next to her in the stable, and from them to their neighbors, etc., if they only be kept living together for a long enough period of time, until perhaps 25, 50, 100 per cent., depending upon the sanitary conditions of the stable, the food and care the animals receive, become victims of the disease.

When consumption was thought to be due to bad sanitary arrangements alone, dirt, dust, improper food, etc., efforts were made to circumscribe and combat the plague by butchering those animals presenting well marked clinical symptoms, i. e., those in which the disease had become acute or from the morbid process having undermined the animal's whole system, making it appear a thin, emaciated, hide-bound, coughing object of ill health. To this was added a disinfection, a spreading of certain chemicals about the stable. Such methods were never availing of much result. It was usually not long before another cow would "go the same way." Not so much from the acute cases is tuberculosis spread, as they soon die, but from the chronic latent ones. Up till within the past few years, with the exception of a few sporadic attempts at preventing the spread of consumption in foreign countries and in our New England states, little has been done towards the eradication of this "White Plague of the North."

Up until 14 years ago the cause of the disease was shrouded in mystery. In 1882 R. Koch announced to a gathering of physicians in Berlin that he had discovered the true and only cause of consumption in man and animals to be a microscopic plant of low order, the bacillus tuberculosis. Though often assailed this assumption has never been disproven. At the present time it is even accepted by a large part of the laity, that to have tuberculosis we must have the tubercle bacillus. *Without this germ no consumption.*

Having determined the cause of consumption, Koch turned his attention towards finding a cure, and a few years later announced that by

inoculating phthisical patients with a product of the germ, which he called tuberculin, he could induce a healing, respectively an encapsuling of the tubercular lesion. His efforts have, however, not been crowned with success. At the Veterinary Institute in Dorpat, Russia, in 1890-91 tuberculin was tried on notoriously tubercular cattle to note its effect upon consumptive animals. A raise in temperture in every case of two degress F. and over, above the normal, first drew the attention of veterinarians to its value as a diagnostic agent. In non-tubercular cattle there was no raise in temperature manifest. Since that time thousands of cattle have been subjected to a tuberculin test and in nearly every case the value of this product of the bacillus tuberculosis as a diagnostic agent has been confirmed. The technique of the manufacture of tuberculin may be omitted here. Suffice to say that it is the toxic product of the germ of consumption and if properly prepared contains none of the bacilli themselves. It can therefore in no case induce, cause or transmit the disease in any form. Tuberculin is simply a chemical constituent, an inanimate substance, and cannot increase itself in the animal body as a living micro-organism has the power to do.

Prof. Bang, of Copenhagen, Denmark, a close student of animal tuberculosis for many years, has since 1891 been trying to eradicate the plague from that little kingdom of 2,200,000 souls and 1,960,000 cattle. In his battle with grim phthisis this agent alone, he says, has placed him in a position to discover tubeculosis in its hidden forms. Since he began his work, 53,303 cattle have been subjected to a tuberculin test of which 20,665 reacted and were found tuberculous. His pamphlet on "The Use of Tuberculin in the Suppression of Tuberculosis in Denmark," I would respecfully recommend to you for perusal.

The effect of tuberculin upon tubercular cattle as to whether their condition was made worse or not by its use, has often been questioned. To determine this point Dr. Bang made post-mortems on 83 tubercular animals that had been subjected to repeated tuberculin tests. Notwithstanding that among these 23 were affected in a high degree in only four cases was an acute miliary (embolic) tuberculosis apparent. Even a localized tuberculosis was not made general in spite of the fact that the cows had been tested several times. We must also bear in mind in this connection that a chronic tuberculosis can at any time become an acute miliary one and lead to a hasty death.

Tuberculin is not an infallible agent. We are at times lead by its use to make a false diagnosis. These false diagnoses are of two kinds, either tuberculin causes a reaction where the animal is not tuberculous, or there is no raise in temperature when the disease is present. Dr. Eber recently made autopsies upon 503 animals condemned as being tubercular with the tuberculin test. The diagnosis was confirmed in 489 instances, while in 74 cases the lesions of the disease were not found. In Denmark 515 post-mortems showed 50 false diagnoses. My own experience has

been that wherever tuberculin caused a raise in temperature in an animal to exceed 2 degrees F., tuberculosis was present, but at times notoriously tubercular cattle do not react to the test. At the present time however tuberculin must be considered as the most valuable diagnostic agent that we possess and by its use alone are we placed in a position to discover and control consumption in cattle.

Tuberculosis in our bovine herds is the most generally prevalent and widely distributed of plagues. No country where cattle raising and dairying are a source of wealth, is free from its ravages. Especially in lands and districts where cattle cohabit together through a long period of time does it seem to flourish. In localities where cows are kept for dairy purposes to supply milk for human food the germ of consumption finds a fertile soil upon which to grow and perpetuate itself. While the young beef cattle of our plains and pasture lands are comparatively immune, in the more densely populated milk producing sections of a country a large percentage of the older milch cows are affected. To give exact statistics as to tuberculosis' prevalency among cattle in our own land would be at this time impossible. From Dr. Ostertag's observations at the Berlin slaughter houses it would seem that few old milch cows are free from the disease. He found 75 per cent. of these old dairy veterans harboring tuberculosis. In Denmark the production of milk, butter and beef, is the chief source of wealth and prosperity and in this country nearly 40 per cent. of the cattle have been found to be tuberculous. The larger the herd the more extended has been the disease. The longer the disease exists in a herd the wider will be its distribution. Of one herd of 208 animals 80 per cent. of the milch cows reacted to a tuberculin test. One dairy herd tested by myself in Ohio showed 32 per cent. to be affected.

The germ of cosnsumption does not seem to be everywhere. Tuberculosis is not then a necessary evil.

Two herds of the red Danish race, that were fine specimens of their type, of 38 and 39 head respectively, were found to be absolutely free from the disease. In these herds in and in breading had been extensively practiced. A large number of the animals had descended from one cow, purchased as far back as 1862. Though the conditions in these instances would seem to favor the development of tuberculosis this has always been free from tubercular taint. In the district of Argenmuende, Germany, among 13,000 head of cattle slaughtered, none was found to be tuberculous; and in the district of Teltow among 40,000 head killed, only 15 cases appeared. On the other hand in the German empire on an average 16 to 25 per cent. of all the cattle killed at slaughter houses have been found to be consumptive.

Although I do not wish to maintain that in the United States the condition of affairs in regard to bovine tuberculosis is as bad as in older countries, it is my impression that the time has come when something

should be done to control this plague that is always a threat to man and a foe to the cattle industry. I will not touch at this time upon the relationship of animal to human tuberculosis. Suffice to say that the consumption of man and beast is one and the same disease, caused by one and the same bacterium and that it is transmissable mutually from beast to man and from man to beast. Although the natural infection of man from the animal in tuberculosis has been somewhat exaggerated of late, that such a transmission does occur and is always probable no man who has given this vast subject thought can honestly deny. Though from the flesh of a tuberculous animal, if the disease be generalized, an infection *can* take place, from the internal organs (viscera) and *milk* is the disease most commonly transmitted. It has been demonstrated that in the milk the germs of consumption are found, even if the udder be apparently intact; and though the bacilli do not multiply in milk, they can nevertheless use this fluid as a convenient means of transportation and to infect susceptible individuals. Calves and hogs are most commonly infected through bovine milk, and in Denmark where mlk of cows is used to fatten colts tuberculosis in horses is not a rare disease. In other countries equine consumption is almost unknown. In calves, hogs and Danish horses the disease appears usually as a "feeding tuberculosis" of the bowel and mesentric glands with secondary nodules in the lungs.

It would seem then to be indicated that these sources of consumption should be controlled. Against tuberculous organs and milk a sanitary war should wage. But to eradicate these sources of contagion we should have first and before all things a thorough system of meat and milk inspection in every municipality in this broad land. Not the mere espionage of an antiquated, ignorant butcher or of some one possessed of a political "pull," but a well equipped and established public slaughter house where trained men would devote their lives and energies to the inspection of all animals killed and the meat thereof. Experts who are trained in the pathology of our meat producing animals, whose one aim should be to protect the citizens of their city from the chance of becoming poisoned or diseased by the ingestion of nocuous flesh. The dairies of the environing country should also be under the rigid control of skilled men well versed in the infectious and contagious diseases of animals. The milk man should be made to not only guarantee his client a certain percentage of butter fat, but should also be compelled to have his cattle herd subjected to a thorough, searching examination at stated periods, that he may be able to assure his customers that the milk he leaves at their door is free from the taints of disease, especially of the death-dealing tuberculosis. This latter is only now possible in that we have in that grand discovery of Koch an agent, though not always infallible, upon which great reliance can be placed to unearth bovine tuberculosis in its latent, incipient forms.

In this connection I will read you an extract or two that I have taken from one of our standard works on meat and milk inspection, written by Dr. Ostertag of Berlin. Here is a case of direct transmission of bovine tuberculosis to the human being. In the summer of 1885 a veterinarian by the name of Moses, of healthy family, making a post-mortem upon a tuberculous cow, wounded himself in the left thumb. The hand healed, notwithstanding the knife point had probably entered the joint. After six months had elapsed tuberculosis developed, the patient became hoarse showing symtoms of acute bronchial catarrh, and in January, 1887, died of embolic tuberculosis.

Another case of even more importance, a case of transmission through milk of tuberculosis. It was reported to the Academy of Medicine in Paris of tuberculosis among school girls at a boarding school. Twenty young ladies were taken ill and five died. In as much as these young women came of healthy families and the symtoms of bowel tuberculosis were manifested, the food was suspected. Finally a cow that had been furnishing milk for the school for several years was killed and found to be tuberculous to a high degree, the udder as well as the bowels and lungs being affected."

President Miller: You have listened to a very able presentation of this very vital subject, and the paper is now before the convention for the freest possible discussion.

Dr. Stanton, of Cincinnati: You spoke in your paper about having made tests of several animals in some state institution, and of having found a certain per cent. affected, and those were killed. I should like to ask whether post-mortem examinations were made?

Prof. White: Yes sir, by myself in every instance.

Dr. Stanton: Were they found to be affected?

Prof. White: I will say that in twelve cases the disease was plainly manifest upon ordinary examination. In one case it was confined to a gland above or behind the udder. In this case I had to resort to a thorough microscopic examination to find the bacilli.

Dr. Stanton: I should like to know what increase of temperature you found in these cases of tuberculin tests?

Prof. White: I think I brought that out in my paper. We never condemn unless the temperature exceeds two degrees Fahrenheit. There is a point, however, that I did not bring out, that the degree of reaction does not tell us the degree of the disease. In other words, where the animal is tuberculous in a high degree there may be barely a two degree reaction, while in animals where the tubercles may be confined to one little gland in the muscles or lungs, the reaction will run up to as high as five. One of our cows last Friday reacted six degrees Fahrenheit. The thermometer in her case read 107 4-5. In making a test we take the temperature every two hours, beginning at six o'clock in the morn-

ing and continuing up until midnight. That gives us an idea of what the ordinary temperature of this cow is normally. At twelve o'clock, midnight, we make an injection under the skin of the neck of 30 minims of tuberculin. At six o'clock the next morning we again take the temperature, and continue taking it hourly till midnight. If there is a rise of two degrees Fahrenheit above the temperature shown the day before, the animal is condemned.

Dr. Stanton: That brings out the point that I wanted to make, that the normal temperature of a cow varies. It is normally higher than that of a human being.

Prof. White: I will say that the normal temperature of a cow is between 101 1-2 and 102.

Dr. Prendergast, Cincinnati: I should like to ask what percentage of cases where tuberculin tests have been made and an increase of two degrees in temperature followed, what percentage of those cases upon a post-mortem examination revealed the absence of tuberculosis?

Prof. White: In Dr. Siedamgrotsky's report in Saxony, about ten per cent. I, however, have had as yet no experience of this kind.

Dr. C. O. Probst: I think this is a very important subject for the boards of health to consider, and I am afraid it is one that they are not paying very much attention to. The legislature evidently intended to place this matter of inspection of milk and meat in the hands of the boards of health, and I find the majority of our boards are doing very little in the way of inspection of dairies. I should like to call their attention to the provisions of section 2133 of the Revised Statutes. If you have not read it carefully you will be surprised to find the powers conferred upon boards of health in this direction.

"Section 2133. The board of health may appoint such number of inspectors of dairies, slaughter houses, shops, wagons, appliances, food and water supplies for animals, milk, meat, butter, and substances purporting to be butter or cheese, and such other persons as may be necessary to carry out the provisions of this chapter, define their duties and fix their compensation; and such inspectors may, for such purpose, enter any house, vehicle or yard; and the board of health shall keep for public inspection a record of the names, residence and place of business of all persons engaged in the sale of milk and meat, and may require permits, after inspection, to vend either milk or meat." (O. L. vol. 90 p. 91.)

I fear that our boards of health are not paying very much attention to this section, and I want to call their attention to this tuberculin test of cattle. I also want to say it has recently come before the supreme court of Minnesota. The council of Minneapolis passed an ordinance providing that milk should not be sold in that city except from herds which had been tested for tuberculosis by the tuberculin test. A case was carried up to the supreme court on the grounds, first, that the tuberculin test was an unreasonable one, and second,

that boards of health had no right to go outside of their own city limits to make a test of milk cows. But the board of health was sustained on both counts; and I am very much in hopes that some city in Ohio will take hold of this matter.

A gentleman: I should like to ask Dr. Probst in regard to those two sections, whether they refer to cities, villages and towns, or whether to cities of the first and second class? There is considerable trouble in smaller places in councils in regard to that particular point, and they have had considerable trouble in trying to enforce rules of that character. They claim that it applies to cities of the first and second classes, and as you have referred to these sections I would like to know.

Dr. Probst: The section says "boards of health." It does not say of any village. It is my understanding that the act applies to any board of health. That was evidently the intention of the legislature.

Mr. Brown of Paulding: The section referred to by the gentleman confers considerable authority on boards of health. Now, with a township board of health for instance, where are we to obtain the means of paying the expenses of this inspector?

Dr. Probst: I am expecting, Mr. President, this whole subject of expenses of boards of health, which is a very vexatious one, to come up in a proposition to be made for discussion, or will follow the attorney general's paper on "Constitutional Limitations of Boards of Health."

Mr. Young, Washington C. H.: I would like to ask Professor White if there are any physical signs by which we can determine whether the cattle are likely to have tuberculosis or not?

Dr. White: Yes sir, in a good many acute cases there are. There are two symptoms that are particularly characteristic: One is a cough and the other is emaciation of the animal. They become hide-bound, the hair is rough and the lymphatic glands become swollen, and the glands above the udder behind. Sometimes there is a slight nasal discharge, and very often if we apply our ear to the side of the chest we will hear rattling noises, tubercular bronchitis. In other cases we have what is known as the "Pearly tuberculosis." The pleura of the chest cavity becomes covered with tubercular excrescences. Sometimes we can hear a grating or rubbing of the rib pleura against the covering of the lung. These symptoms, however, are not absolutely characteristic. They are symptomatic of other diseases foreign to tuberculosis. Before we had the tuberculin we depended mainly upon the post-mortem examination. I will say further that in man sputum may be gathered and examined under a microscope and the presence of the germ of the disease determined. But cattle do not expectorate, usually what they do cough up is immediately swallowed, so that means of diagnosis is cut off from us.

Mr. J. E. Foster, Coshocton: I should like to ask Dr. White in what per cent. of tuberculous cows you find tubercular bacilli in the milk; also if they are found in butter and cheese?

Prof. White: That is a question I cannot answer. In Massachusetts, I believe the report is something like 30 or 35 per cent.

Mr. Foster: I should also like to ask why it is that tuberculin has fallen into disrepute in human practice?

Prof. White. Because Dr. Koch originated it as a cure for consumption. It is not a cure for consumption, in either man or animal. We simply use it as a diagnostic agent to get this rise in temperature.

Mr. Foster: Do you think there is enough disturbance manifested in the system of the subject after the tuberculin is used in any case to cause injury?

Prof. White: No sir, I brought that out in my paper that the animals are not affected permanently in any way. It has been maintained that after a dairy herd has been subjected to a tuberculin test that the milk production fell off. We kept a record at the university of our cows and we found that after the test there was rather an increase, at least for a few days, then a decrease. The animal is usually very little inconvenienced. The temperature does not usually remain up more than five or six hours, then it returns to the normal.

Mr. Foster: I simply wanted to find out if it is injurious to cattle. There is no doubt that the milk, even if it is boiled, would be injurious to tuberculous people, and in that way we find it injurious.

Prof. White: From what has been done in regard to cattle that does not seem to be the case.

Dr. W. A. Daugherty, Bucyrus: Dr. White in his paper states that he has examined some herds in which from 30 to 40 per cent. are tuberculous. I should like to ask Dr. Probst if any estimate has been made in the state of Ohio of milk cows affected with tuberculosis at the present time?

Dr. Probst: No estimate that I know of, unless it is an estimate that Prof. White gave me. I expect he knows more about that than anybody else.

Dr. Daugherty: The reason that I asked this question is this. In the eastern states the per cent. is higher, and some have thought it is about 15 or 20 per cent. in this state.

Prof. White: I should say those are simply approximations. I wrote to the bureau of animal industry at Washington and it reported about 20 per cent. of the cattle injected with tuberculin have reacted and been found tuberculous. That would include a district stretching from the state of Maine on the east to California on the west.

J. B. Strawn, Salem: I should like to ask if there have been sufficient tuberculin tests throughout the country to give us sufficient data to form a general conclusion?

Prof. White: In this country there have not been. In the state of Massachusetts they have inoculated some 25,000 head I believe up to date and something like 18 per cent. have reacted. The United States govern-

ment reports 15,000 inoculated and but 3,000 in round numbers reacted.

Dr. D. J. Merriman, Painesville: I should like to ask Dr. White if the cattle which have reacted from the tuberculin test have been killed and a post-mortem examination made, or whether they are regarded as tuberculous with such an examination?

Prof. White: All the statistics that I have quoted are of animals that have been killed and tubercles found on post-mortem examination. Where the animals are not reported to the government as having been killed and a post-mortem examination made those statistics are not included.

Dr. Merriman: What I wish to get at is this. There were experiments performed on about 21,000 head of cattle in Massachusetts; and what I wanted to find out is whether there had been a large percentage of those cattle killed, which had reacted from tuberculin in the state of Massachusetts, and whether they had been found to be tuberculous? I simply wanted to bring it home to our own state.

Prof. White: In the state of Massachusetts there is a state law that every animal that reacts shall be killed and the meat injected with some indelible coloring matter and destroyed. From what they tell us where tuberculin has been properly applied, the temperature taken regularly and the correct doses given, so to speak, it had proved an invaluable agent. These statistics that I gave you showing that in some countries they have had ten per cent. of failures,are confined to continental countries, not to America.

Dr. Chas. E. Blacker, South Bloomfield: I wish to inquire if we have any test by which we can obtain the rate of this increase. You say that about 20 per cent. of the cows are tuberculous. Now at what rate will they increase? Can we determine how fast the other four-fifths of the herd will be affected?

Prof. White: That is a corker. (Laughter). The statistics that I have are essentially German, but it would seem that tuberculosis is doubling year by year. For instance, in Saxony, in '88, 5 per cent. were affected, in '89, 9 per cent., in '90, 16 per cent. It is about that rate. Now a great many diseases have been taken for tuberculosis, or I should say tuberculosis has not always been recognized. And then another thing comes in here. Meat inspection is being rigidly enforced in Germany, and they are finding more cases than they originally did. We must admit that the disease is increasing at apparently a rapid rate. I will say this that this is a contagious disease, but its contagiousness cannot be compared with that of small-pox. By actual experiment it seems that animals must cohabit together for a long time, say six, seven or eight months to contract the disease.

A Gentleman: I should like to know what would be the best manner of disposal of the animals after they have been condemed and killed so that the disease would not spread, or whether the use of this tuberculin destroys the germ?

Prof. White: That is an open question, sir. There are two sids to it. The French maintain that as soon as the animal reacts from the tuberculin test it should be killed and the meat destroyed. The Germans and Danes and the northern countries are more economical. They are in favor of using the meat of animals in which the disease is localized. A great number of experiments have been made with the blood of tuberculous animals, where the disease was localized, say in a gland or lung, and in no case could they produce the disease in the experimental animal. But where the disease was generalized, where it was spread by the blood all through the meat, it should be condemned and destroyed by boiling it.

Question: Wouldn't that be rather a dangerous method?

Prof. White: It would not be if we had a proper system of meat inspection as they have in all civilized countries.

A Gentleman: You say to a certain per cent. they would use the meat, and after it became affected more than that and above that per-cent. that they would not use it. How can they come to the conclusion?

Prof. White: They never use the meat when the glands, which draw their lymph from the meat, are diseased. Then they discard it. That would require an expert, a man thoroughly familiar with the process.

The President: The next paper on the program is that of Food Adulteration by Dr. Kahle of Lima.

FOOD ADULTERATION.

BY R. D. KAHLE, M. D., MEMBER OF THE STATE BOARD OF HEALTH.

We believe that every person has the right to know the composition of the food he eats, and by food is meant all those articles of food and drink used by man. He has the right to know that the article he purchases is what it is represented to be.

The adulteration of food may be considered from a financial as well as a sanitary standpoint. When a purchase has been made of an article of food which has been adulterated by the addition of some inert substance or by the extraction of some of the active nutrient products he has been defrauded not only financially, but may suffer a still greater loss from a sanitary standpoint; especially is this true of invalids and infants.

Civilization protects the weak from the strong, the consumer from the dishonest or careless dealer. There are but few articles that can not be adulterated, and civilized countries have found it necessary to enact laws bearing on the subject of adulteration in a general way, also in special instances of this evil. These laws have been widely different in degrees of rigor, and have had varying success in practice.

The earliest notice taken of adulteration in England was in reference to bread, and in the reign of John, in 1203, a royal proclamation was made throughout the kingdom enforcing the purity of this staple article. Later, in the reign of Henry III, a statute was passed called the Pillory and Tumbrel, in order to prevent brewers, butchers, bakers, vinters and others from adulterating or weakening their wares. This is the first statute expressly prohibiting the adulteration of human food. This was enforced until the year 1710 when it was repealed and another took its place. The following is the punishment for a baker selling unwholesome bread: "If any default shall be found in the bread of a baker in the city, the first time let him be drawn upon a hurdle from the Guildhall to his own house through the great street where there be most people assembled, and through the great streets which are most dirty, with the faulty loaf hanging from his neck. If a second time he shall be found committing the same offence, let him be drawn from the Guildhall through the great street of Cheepe in the manner aforesaid to the pillory. And let him be put upon the pillory and remain there at least one hour in the day; and the third time that such default shall be found he shall be drawn, and the oven shall be pulled down, and the baker made to foreswear the trade in the city forever." Grocers, vinters, butchers and others were liable to the same penalties.

Such penalties would do much to make adulteration unpopular, and it is said that a good standard of purity was maintained. Adulteration was not a noticeable characteristic of the commercial products or of human food until quite modern times, when the middleman came to be a recognized factor in business dealings, and the demand for food products increased to such extent that adulteration opened up new channels for pecuniary profit. The public is more cheated than poisoned by the adulterations generally practiced. Numerous laws more or less advanced have been passed by the various states looking to the abolition of this nefarious practice,and there is no doubt but that the practice is held in check, and that the adulteration of food is not so flagrant as before they were passed and enforced. With good laws properly executed this evil will be finally reduced to the minimum.

The food law in Ohio is substantially the same as in several other states. The principle provisions of the Ohio law may be of interest. Section 1 is as follows: That no person shall within this state, manufacture for sale, offer for sale or sell any drug or article of food which is adulterated, within the meaning of this act.

Section 2. The term "drug" as used in this act, shall include all medicines for internal or external use, antiseptics, disinfectants and cosmetics. The term "food" as used herein, shall include all articles used as food or drink by man, whether simple, mixed or compound.

Section 3. An article shall be deemed to be adulterated within the meaning of this act.

(*a*) In the case of drugs; (1) If, when sold under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality or purity laid down therein; (2) If when sold under or by a name not recognized in the United States Pharmacopœia, but which is found in some other Pharmacopœia, or other standard work on materia medica, it differs materially from the standard of strength, quality or purity laid down in such work; (3) If its strength, quality or purity falls below the professed standard under which it is sold.

(*b*) In the case of food; (1) If any substance or substances have been mixed with it, so as tc lower or depreciate, or injuriously affect its quality, strength or purity; (2) If any inferior substance or substances have been substituted wholly or in part for it; (3) If any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it; (4) If it is an imitation of, or sold under the name of another article; (5) If it consists wholly or in part, of a diseased, decomposed, putrid, infected, tainted or rotten animal or vegetable substance or article, whether manufactured or not—or in the case of milk, if it is the produce of a diseased animal; (6) If it is colored, coated, polished or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better, of greater value than it really is; (7) If it contains any added substance or ingredient which is poisonous or injurious to health, or any deleterious substance not a necessary ingredient in its manufacture; provided that the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles of food, if the same is distinctly labelled as mixture or compounds, and not injurious to health, and contain no ingredient not necessary to the preparation of a genuine article of such mixtures or compounds and from which no necessary ingredient in its preparation is eliminated.

Another section fixes the penalty at from $25 to $100 or imprisonment from thirty days to one hundred days or both, with cost of analyzing the adulterated article.

The adulteration of food is not a matter of ignorance but of vicious practice, and the extent to which it is carried is only limited by the vigor of the enforcement of the food laws.

All adulterations are fraudulent, some are fraudulent and unwholesome, some are incidental to the methods of preparation or preservation.

Some of the more common articles adulterated are: Coffee, adulterated with chicory, wheat, wheat bran, oats, corn, peas, baked and roasted, starch and berries. The extent to which it is adulterated is shown in the Ohio commissioners' report as high as 87 per cent. and not unfrequenty 50 per cent. of specimens examined.

Tea is adulterated with various leaves and coloring matter for facing. It is estimated that 20 per cent. of the tea imported into this country is adulterated.

Butter with oleomargarine, animal fats and water.

Lard with cotton seed oil, potato flour or starch.

Sugar with glucose and water.

Flour with barley and rice flour, bean meal and white peas.

Olive oil is an article of food subject to very extensive adulteration, the most common being the substitution of a refined cotton seed oil which is manufactured in large quantities for the purpose.

The spices make a fruitful field for adulteration, but few of the ground spices are found unmixed with other substances.

Probably no species of adulteration as commonly practiced, is of greater detriment to the community than the watering of milk. Consisting in itself merely of the addition of a perfectly harmless fluid, it naturally constitutes the most frequent form of adulteration, and one which is apparently practiced without a thought of the very serious indirect danger attending it. Milk forms almost the sole food of infants and children at an age when their slender constitutions will not bear the loss of needed nourishment. More than one-fifth of the deaths each year are of children under one year of age. Milk, no doubt, plays a prominent part in this horrible array of sacrificed infants. In Berlin the death certificates of children under one year must state whether the infants were brought up at the breast or upon artificial foods. In 10,000 deaths it was found that three-fourths, or 7,646 were artificially fed. Minert, of Bavaria, has shown that out of 400 deaths of children from summer diarrhœa that came under his observation, 96 per cent. were nourished artificially. In the investigation made by Hope in England, he disclosed that only 3 per cent. of 1000 deaths were breast fed infants. Now it is true that this alarming high death rate among infants can not entirely be laid to the adulteration of milk, but as cow's milk is the universal substitute for mother's milk, forming as it does almost the chief source of sustenance, such a form of adulteration is considered something more than merely fraudulent and punished accordingly.

Various forms of adulteration are popularly accredited to the milk producer, but experience has shown that but two are commonly employed, viz: The addition of water and the withdrawal of cream, with, perhaps, the occasional addition of milk from a diseased cow. Milk may vary considerably in its composition depending upon the breed of cows and the composition of their food, so that it may be difficult at times to determine whether a sample has been adulterated or is the product from an inferior animal. However this may be, the law of Ohio fixes the standard for milk which is as follows:

House bill No. 146, section 4. In all prosecutions under this chapter, if the milk is shown upon analysis, to contain more than

88 per cent. of watery fluid, or to contain less than twelve per cent. solids, not less than one-fourth of which must be fat, it shall be deemed for the purpose of this chapter to be adulterated, and not of good standard quality, except during the months of May and June, when milk containing less than eleven and one-half per cent. of milk solids shall be deemed to be not of good quality.

The following shows the average composition of pure milk and constitutes a standard below which good milk should not fall.

Specific gravity	1.030
Cream per cent. by volume	8.
	Per Cent. by Weight.
Sugar	4.40
Casein	4.30
Ash	0.60
Solids not fats	9.30
Fat	3.20
Total solids	12.50
Water	87.50
	100.00

By the specific gravity and the quantity of fatty matter the purity of milk can usually be determined. Specific gravity alone will in many cases determine satisfactorily the addition of water, but exceptionally milk rich in fat or cream may possess a specific gravity as low as that of badly watered milk. The specific gravity is generally taken by an ordinary hydrometer or lactometer, graduated in various ways. However the lactometer should be considered as an instrument for the preliminary examination. Fat and cream in milk may be estimated by various convenient methods as by creamometer, a graduated cylinder containing say 10 c. c., by the use of which the amount of cream rising on the surface in 24 hours can be measured. These methods may be used to advantage in many cases. The total solids are readily determined by mixing ten grams of the milk in a weighed platinum dish, with twenty grams of freshly ignited sand (using a weighed porcelain spatula), and evaporating the mixture to dryness over a water bath, occasionally stirring. The residue is then further dried in an air bath at 100° to 110°c. until of constant weight. The weight of the residue, minus the weight of the dish, spatula and sand, multiplied by ten, gives the percentage of total solids.

There can be no objection to selling skim milk as such. It has considerable nutrient value, provided it is sweet and fresh. Of course such milk is not adapted to the use of infants.

This list could be made a very long one for most of the food products are found at times to be adulterated. Of 1329 articles examined by the Ohio Food Commissioner in 1894, 846 were found to be adulterated. In 1895 of 1471 samples examined, 919 were found to be adulterated, or more than 60 per cent. of the articles examined. The extent of the adulteration was found in some instances as high as 80 per cent. of the article examined. This does not mean that 60 per cent. of our food products are adulterated, for articles that were not suspected of being adulterated were not examined.

Dr. McNeal has called attention to the frauds that are perpetrated upon the people by what is known as the proprietary system, whereby by adopting a special name inferior articles are made to sell at enormous profit; where three cents worth of commercial glucose by vigorous advertisement is made to sell for one dollar in large quantities, as a predigested food. Wheat middlings, with a little rice flour and cornmeal are readily sold under a proprietary name and label as pancake flour or breakfast food, at five cents a pound, when the real value does not exceed one cent a pound. The poorest skimmed milk combined with a little cocoa butter and sugar, dear at one cent a pound, is sold under the name of infant food or some special name at twenty-five cents a pound. These are abuses that should be corrected by proper laws, vigorously enforced.

On motion a recess was taken until 730 p. m.

EVENING SESSION.

Promptly at 7:30 o'clock in the evening the president called the convention to order and announced that as word had been received that the attorney-general would be somewhat detained that the business of the meeting would proceed and he thereupon introduced Prof. A. M. Bleile of the Ohio State University, who delivered an address upon "The New Disinfectant."

THE NEW DISINFECTANT.

BY PROF. A. M. BLEILE, OF THE OHIO STATE UNIVERSITY.

Mr. President and Gentlemen of the Ohio State Board of Health: The title given "The New Disinfectant," is synonymous with formalin or formaldehyde, a substance the name of which is familiar to all of you. I will give you a resume merely of some work which was undertaken in my laboratory. My attention had been fixed on this subject for some years and I was convinced of the great value it had in many directions, and one of these was its application to the sick room as a disinfectant. At my suggestion Mr. Boyd, a student in the department at the state

university, took up this subject and carried on the work, so far as it has gone, with so much conscientious skill, that I feel the utmost confidence in the results which I am about to give you, but I did not write a paper, Mr. President, because as I told you, the work is not complete. I have taken out of the work such things as I thought would be of special interest to the sanitarian. I will avoid as much as possible the purely technical points and things of purely scientific interest, so as not to consume unduly your time.

Formalin or formaldehyde was discovered so late as 1867, so that it is a comparatively new chemical body, and yet I think no other chemical substance has come into such wide-spread and general use as this has in recent times. It was very soon found by some French observers that it was a powerful antiseptic and disinfectant, and that of course would bring it into some prominence, and these vauable properties soon caused it to spread as it did. The substance is made from methyl, or wood alcohol. It is a gas at ordinary temperatures, but is very freely soluble in water, and is brought into commerce in a watery solution which is called formaldehyde. It forms a clear fluid with a disagreeable and pungent odor. It causes a watering of the eyes and nose without any sting to it. As to its physiological effects on the body nothing is known. I have been unable to find just in how far it would effect the human organism. It has been said that ninety grains of pure para-formaldehyde have been taken without any ill effects, and I have seen fifteen drops of the concentrated solution given and this dose repeated daily for a number of days without any untoward symptoms following, so that it cannot be considered violently poisonous at any rate.

Another point and I shall be done with its chemical and physical description. When applied to the skin it acts very much like concentrated carbolic acid does, but it does not cause any pain. The skin is drawn up and it leaves an unpleasant sensation which lasts for many hours, and it is said, if the application is repeated, it will cause death of the skin and ulceration will begin.

Now, we were lead to take up this substance in search of a disinfectant which would do that which the disinfectants now in use do not do completely. My idea, at any rate, of an ideal disinfectant would be one that is sure in its action, one that is infallible, that acts the same way every time. As another characteristic of an ideal disinfectant I would say we should have ease of application. That is, it should be a substance that could be readily applied, readily brought into use, not by persons skilled in the laboratory methods and the handling of chemicals, but by sanitary officers in general who have to meet problems with very simple apparatus at their command. Then as another requirement I would say that the ideal disinfectant should not be destructive of metal or fabrics that are found in and about the sick room. Further it should be non-poisonous; at least it should not have a marked toxicity so that accidental taking of such a

disinfectant in small quantities would not be attended with loss of life. It should be volatile that it can be brought into a state of vapor, for only in that state can we be certain of reaching every nook and corner in the room. And last but not least it should be cheap. Where di sinfection is to be carried on on a large scale we cannot deal with expensive chemical agents. There will always be a tendency to economize in their use and to drop below the line of efficiency. Therefore I set down as another requirement of an ideal disinfectant that it must be cheap.

Now the disinfectants that are common in use are very far from complying with these requirements. Take that which heads the list, bichloride of mercury. It is certain where we apply it it will kill bacteria; it is not difficult of application up to a certain point; it is not destructive of fabrics, though it is to many metals, but it is highly poisonous, and that would preclude its coming into general use by people in their homes. Then the greatest objection is that it is not volatile. It is cheap, to be sure, but as we shall see, not as cheap as our formaldehyde. Well, we wanted to find out in how far formalin can fill this bill that I have laid out for it and in what quantities and under what conditions it was necessary to use it so that we might get the desired results. Our mode of procedure was to deal in the experiments with pure cultures of bacteria as we thought in that way we would be most certain of our results,and they were then treated by methods known to the bacteriologist, but it is needless to go into this here. We soaked cloths with these culture fluids and were sure to have a great many bacteria to deal with. The experiments were carried on first in a smaller box and then in a box of about fifty cubic feet in contents, and a few experiments only have we been able to carry on in a room. Now, at first we poured out the formalin. I think if I pour a little out on the stage here the vapor will soon penetrate the room (which the speaker does). It is quite volatile and we thought that possibly by merely exposing it in a room in shallow dishes we might get enough of the vapor through the room to kill the bacteria. For these experiments we took bacteria as they occur in any ordinary decayed or purtrified flesh for one sample, and for another sample we took the *anthrax*, not because anthrax is a disease in man, but these bacteria were chosen because they are very resisting, particularly when they form spores. And it should be borne in mind that bacteria are harder or easier to destroy as we find them in certain conditions. Now it is a comparatively easy matter to kill them when they are not thoroughly dried out, but in a dry state it is more difficult to kill them. Well now, our anthrax bacilli we had in the form suggested, that under the conditions where they formed spores, and it is known that of all bacteria the anthrax are the most difficult to kill. So that we took the the anthrax bacteria to give the severest test that could be made with formalin.

Now, I have estimated the cost per room for the use of this agent in

quantities necessarily involved. I have figured it in a round sum, to avoid too much calculation, on a room containing a thousand cubic feet. That is a little small and a little below the average sick room found, but it will meet many cases in which disinfection would have to be practiced and being thus in round numbers if the room were larger it would not be a difficult matter to calculate from a thousand cubic feet and see how much would be required. We first exposed it in shallow dishes and used an amount equivalent for a thousand feet of 12,600 centimeters. That would be twelve quarts. One thousand cubic centimeters is equivalent to a quart, costing at the price that formalin is usually sold, 75 cents a pint or pound, $18.90. And we found that this was not sufficient to kill the bacteria. We next took 25,000 cubic centimeters, 25 quarts, and we did kill both the putrifaction bacteria and the anthrax bacteria but it cost $36.50. That of course would make it an impracticable disinfectant. We could rarely use anything that would cost $36.50 per single room to be disinfected. While this formaldehyde is a gas, if after letting the solution evaporate slowly the formaldehyde changed into what the chemist calls para-formaldehyde, the formula is (HC HO) 3; that stands for formaldehyde, and this is a body in which we have the same composition. Three molecules of the gas united to form one molecule of the new body, and that gas was the white waxy substance you see in this bottle. A little of the gas went into the air, but the bulk remained in this white substance inactive. We had to abandon that method because we could not economically use it.

Our next endeavor was to get formaldehyde into the air and not back into this solid form in our dishes. Within the last few months various lamps have been patented for the purpose of forming formalin directly by the oxidation of the wood alcohol.

It seemed to me that there would be an objection to this, for the lamps are somewhat expensive and more or less complicated, and it requires someone familiar with chemical apparatus to run them, and there is always an element of uncertainty about them to know just how much formaldehyde is being formed.

In our next experiment we took advantage of the fact that if you add to such a solution of formaldehyde some calcium chloride and let it evaporate, the gas will pass off, then you don't have this para-formaldehyde in this solid form. We took a few results from that line of experiments, and we found that two thousand cubic centimeters, that is, two quarts, costing three dollars, would kill the putrifaction bacteria, but not the anthrax; that is, we could, if we knew just what kind of germs we had, be able to get along at a cost of about three dollars per room, but we could not be certain that some spores had not escaped us. Now, we pushed that along until we found that it takes eight quarts in a room of one thousand feet, and that will kill the ordinary putrifaction bacteria

and also kill the anthrax. But there we have a cost of twelve dollars per room, still too great to be of any very great value.

We next stumbled onto the fact that if we applied heat to formalin solution we could drive it off without the formation of the solid body, and we found that two quarts in a room, costing three dollars, would kill the putrifaction bacteria, but it merely stopped the growth of the anthrax bacteria. To kill all forms it was necessary to use four thousand cubic centimeters, four quarts, costing six dollars, and that quantity would kill all of them.

About this time Dr. Probst of the state board of health, called my attention to a circular he had received in which formalin was offered at greatly reduced prices. It is ordinarily sold in pound packages which sell at 75 cents a pint or pound. In this circular a firm in New York offered it in large lots, such as a city or institution would use, in carboys of 120 pounds at 18 cents a pound, about one-fourth its regular cost. So that if it were bought in these quantities these figures could be divided by four That is, under such circumstances we might disinfect a room for seventy-five cents, and if we had the anthrax it would still cost us one and a half dollars. [The name and address of this firm is Victor Koeche & Co., 79 Murray St., New York City.—Ed.]

Now to bring it down nearer to our purposes we tried the results next on typhoid fever and diptheria bacilli side by side, and we wanted to know the smallest quantity that could be used and the least time of exposure. In the results that I have given you the time of exposure was 24 hours. Now, that in practice I thought that would be too long a time. A room might not be given up for a whole day, it might be a serious inconvenience which would prevent the thorough application of the disinfection; so that we wished to fix the other point, the least time of exposure that would suffice, and yet give us thorough work.

Here we found that 300 cubic centimeters, that is, 3-5 of one pound, costing 45 cents, or with the new price of formalin, 10 cents per room, in two hours would kill all forms if they were moist, in a wet condition. That would reach the lowest possible cost under the best circumstances under which disinfection can be done.

We made other experiments in which we had thoroughly dried these bacteria. We dried them so that all the moisture was removed. In practice they would not get so dry as these, but we wished to go to the extreme, so as to fix the largest minimum time and the largest minimum amount, and we found it would take 500 cubic centimeters, that is, one pound for a room of a thousand feet, costing 18 cents for six hours. I say one pound of formalin evaporated by heat and costing eighteen or seventy-five cents, in six hours will kill any known form of bacteria of which the human family needs to be afraid.

There are one or two points in the evaporation of the fluid that may be worth mentioning, since this agent will, as I have no doubt, come into general practice. If we start with a dish and put a

lamp under it it is very important that we fix the lamp so that it will go out of itself after a certain time, because you cannot, after your lamp is on, and the formalin is being volatilized, come back and turn the lamp out. An alcohol lamp can be left to itself to go out and there will not be any conflagration or anything of that kind. It will require a considerable heat to drive it all off in the form of gas. A better way is to use a machine like this (illustrating) which is known as a separator. You put your formaln in here (indicating) and by means of this stop-cock regulate the flow and let this drip into the heated pan and it will at once go off in the form of heated vapor. In this way we accomplish the object in a shorter time than if we attempted to heat the whole quantity.

Now, there is another way. If we hadn't any such a separator at hand we could make a siphon of lamp wicking, put one end down into the bottle and simply let the other end hang out lower than the bottom of the bottle and in that way we would get all of our formalin over and all of it vaporized.

Formalin is used for the preservation of meat and milk, and the preservers and canners of fruit have gone into it, and the brewers and wine-makers have also found use for it in keeping their beverages from souring through the growth of bacteria. The proportion in which we used it is one to 5000. I am refering here to the solution and not to the gas. Lesser proportions of formalin are sometimes given as effective but we found that they were not always to be depended on. If we wanted to reduce it to a gas we must multiply that by 2 1-2. One part of formalin in 5,000 of the fluid would certainly prevent the growth of typhoid and anthrax bacteria. Then that quantity would be enough to disinfect any clothing or any other article put in with it. Now, to reduce that to more concrete figures, a pound of formalin would make 625 gallons of disinfecting fluid, and carrying it still further, formalin added in the proportion of less than two drops to the pint of fluid would be sufficient to disinfect discharges or any other fluid matter from patients. And to carry it out still further, 1 6-10 cubic centimeters—which is considerably less than a teaspoonful—to a bucketful of water of two gallons, would disinfect all clothing or other mateial that would be soaked in such a fluid. Now, those are extremely minute quantities, and it puts formalin lower in cost than all the other disinfectants. The cost here is nominal. I should say that it would be 3-5 of a cent per gallon of disinfecting fluid, and a fluid that will disinfect; that won't simply fulfill the definition that a student gave of a disinfectant. He said that it was something that smelled so bad, Mr. President, that people had to open up their doors to let in fresh air. This is the real work that formalin can accomplish. It will destroy the most offensive vapors and gasses and make a room sweet and clean in an inconceivably short time. Gentlemen, I thank you for your attention.

The President: We have listened to a very carefully prepared and instructive address. To my mind it has been one of the most practical subjects we have had at our convention, and I will invite remarks upon the subject.

Dr. Merriman: I would like to ask the professor if a solution of two drops to a pint of water would be sufficient to use with an atomizer for a diphtheria patient?

Prof. Bleile: I haven't any doubt that two drops would be sufficient.

The President: I will call upon Dr. T. Clarke Miller for some remarks upon this subject.

Dr. T. Clark Miller: Mr. President, I do not know that I have anything to say. I have been very much interested in this matter, and I have learned a great deal more about it than I ever knew before. Of course I expected to. It seems to me that the professor has done us a great favor in presenting this matter to us in so tangible a shape, in a form so easily understood. I feel under great obligations to him. I have been hoping and expecting a great many things from formalin, but this is the first time I have had an opportunity to hear from a person who has with scientific accuracy investigated the matter. I cannot say anything more than that I was very glad to hear and was very much pleased with the way the subject was presented. I think I will remember almost all of it. I am sorry that the professor could not have gone on some time longer.

Dr. L. D. Craig: I remember of seeing something sometime since in regard to this substance being used to disinfect books. Have you had any experience, professor, in disinfecting books, exposed to germs of typhoid and scarlet fever?

Professor Bleile: We disinfected some books a year ago at the State University library that had been in a smallpox house, but they had not been directly exposed, because if they had been I should not have taken the trouble to disinfect them. I should have burned them.

Dr. Stanton: In this connection I would like to say that when at Buffalo attending the meeting of the American Public Health Association this article was reported on by Professor Robinson of Maine. He showed a lamp which he had devised for the purpose of generating gas, and he said that he had placed cultures in closed books and exposed them to the gas for three hours and he found the cultures were perfectly disinfected, demonstrating that this can be used without injuring fabric, without in any way injuring books, and yet the demonstration proved that even in closed books the cultures were completely destroyed.

Dr. Merriman: I would like to ask a question in regard to this matter for the benefit of housekeepers as well as in regard to health conditions. I presume nearly all of you have heard of the buffalo bug and how difficult it is to get rid of it. I have been told that it will almost

live in a solution of bichloride of mercury and we have found it very difficult to find anything that will destroy it, and I would like to know if formalin will accomplish the destruction of the buffalo bug.

Professor Bleile: The vapor of formalin as given off from its solutions is, so far as my experience goes, not fatal to insects. Where heat is used to drive it off it might be. Formalin poured on a carpet would leave the white spots of para-formaldehyde which are difficult to remove.

The President: We will now proceed to the consideration of the next paper. I notice that we are favored with the presence of the attorney general and we will now listen to a paper on the "Constitutional Limitations of Health Boards," by Hon. F. S. Monnett.

Hon. F. S. Monnett: Mr. President and gentlemen of the state board of health: You are to be congratulated upon the large attendance you have.

I might say that it does not make much difference to you as citizens of the state of Ohio who are the state officers, or who are the county commissioners or the city councils, or who are the members of the boards of health, as persons, but you are deeply and vitally interested as citizens in knowing the limitations of the different departments and what your money is expended for. I had occasion the other day to talk to the county commissioners by request of their committee and I observed that the state taxes are 2.75 mills, and that in some parts of the state of Ohio, it is 45 mills. The entire amount expended in the state is about $4,360,000 a year, for state expenses, and it has grown now to be a matter of considerable importance to know how far we may expend that money under that part of the constitution and bill of rights known as "the general welfare." And that, gentlemen, is the department under which you exercise your power. For if a railroad corporation intends to pass through one of your lots or your property, any lawyer here will tell you, and you may know by experience, that by the right of eminent domain they are obliged to compensate you for that property. That is, under the bill of rights and under the constituton, and under the state laws, they are obliged to appraise that property and pay you the value of the property so taken; but the powers you are to exercise come under what is known to lawyers as the police powers. To illustrate what I have said: if there is a fire raging and your residence is standing in the way, we do not have to go to the probate court for permission, but we put the hooks right into the building and tear it down. Now, that is one class of police powers, and I use that simply as an illustration, and it is under these powers that you are acting. It is marvelous to what extent you can go under the term general welfare, and it is only recently that the courts have been called upon to construe this and limit your powers, and I find in many departments we have not yet reached the limits.

CONSTITUTIONAL LIMITATIONS OF HEALTH BOARDS.

BY HON. F. S. MONNETT, ATTORNEY-GENERAL.

INTRODUCTION.

Prior to the days of a republican form of government, the above title to a paper would have been an anomaly. Under the old rules of monarchies there were no limitations on the police powers of the government.

The king ruled by divine right, believing that he obtained his authority from a Supreme Being, and acknowledged no natural or inherent rights in the individual.

Along with the growth of the idea that kings had no divine rights, the public mind was no longer held by this theory, until it is now repudiated altogether, so far as this country is concerned. The king is not the vicegerent of God and the people the subjects of the king, but the king and officers of the government are the subjects of the people, and the people become the real kings. Hence the police powers heretofore so absolute in the hands of the king, under our republican form of government have their constitutional and legal limitations.

The cry for liberty of action, and freedom of personal movements, has led to socialism, communism and anarchism, until the political pendulum is again swinging in the opposite direction, and the state is assuming more minute control and interference over the social and domestic affairs of society. Within the last decade a demand for the interstate commerce act, legislation against combinations and trusts, arbitration boards for strikes, controlling of the rates of railroad fares, water and gas, even down to determining the size of a hat a woman shall wear to theaters, demonstrates the extremes to which public sentiment is demanding a protection of the weak against the shrewdness of the stronger. Along with boards of arbitration, labor bureaus, dairy and food commissioners, come the innovations unknown to the early fathers of this country, the federal state and city health boards.

As this is being developed, inquiries are springing up on every hand, some with no degree of alarm, asking what are the limits of the police powers of the state, and have we weached our limit in paternalism or absolutism in democratic institutions? It would be impossible for me in a short paper, to compass the whole field, but I will attempt in brief to give you an outline of some of the sub-divisons thereof.

DEFINITION.

The police power of the government is the exemplification of the maxim, "*sic utere tuo, ut alienum non laedas.*" "So to use thine own as not to injure others."

Lord Beaconsfield has observed "the health of the public ought to be one of the chief considerations of the statesman." It is one of the fundamental doctrines of the preamble of the constitution, "to promote the gen-

eral welfare." And this must be brought about by the people consenting to the enforcing of laws to preserve and promote public health and public safety.

So difficult is it to define the exact scope of police powers, and so unsettled are the courts as to its limit, that the supreme court of the United States in *Stone* vs. *Mississippi*, 101 U. S. 814, held, Chief Justice Waite giving the opinion, that "Many attempts have been made in this court and elsewhere to define the police power of the state, but never with entire success. It is always easier to determine whether a particular case comes within the general scope of the power, than to give an abstract definition of the power itself, which will be in all respects accurate."

Chief Justice Shaw said in a much earlier case, "It is easier to perceive and realize the existance and sources of this power, than to mark its boundaries, or prescribe limits to its exercise."

Justice Barbers, in 11 Peters U. S. 139, said, "Every law comes within the description of a regulation of police powers, which concerns the welfare of the whole people of the state, or any individuals within it, whether it relates to their rights or their duties; whether it respects them as men or citizens of the state; whether in their public or private relations; whether it relates to the rights of persons, or of property of the whole people, or of an individual within the state; and whose operation is within the territorial limits of the state, and upon the persons and things within its jurisdiction."

Chief Justice Redfield undertook to define it in 27 Vt. 149, in saying, "The police power of a state extends to the protection of the life, limbs, health, comfort and quiet of all persons, and protection to all property within the state, within the range of legislative action, to define the mode and manner of course, in which every person may so use his own as not to injure another. It is that general power of a state that persons and property are subjected to all kinds of restraint in order to secure general comfort, health and prosperity to the state."

The court held in 70 Ill., 192, that "the police power of a state is co-extensive with self-protection, and is applicably termed 'The law of overruling necessity.' It is the inherent and plenary power in the state which enables it to prohibit all things hurtful to the comfort and welfare of society."

Blackstone attempts to define police power by saying "It is the due regulation and domestic order of the kingdom, whereby the inhabitants of the state, like members of a well governed family, are bound to conform their general behaviour to the rules or propriety, good neighborhood, good manners, and to be decent, industrious and inoffensive in their respective stations."

Judge Cooley supplements this by saying, "It is a legislative attempt to establish for the intercourse of citizens, with citizens, those rules of good manners and good neighborhood which are calculated to prevent a

conflict of rights, and to insure to each the uninterrupted enjoyment of his own so far as it is reasonably consistent with a like enjoyment of rights by others."

Extent of the Power.

With each decade of the century's growth it is demonstrated that we cannot live without the existence of such laws. They are justified by the necessity and sanctioned by the right of self-preservation.

In the constitution of Ohio we ceded to the state as individuals, the right of the state to promote our common welfare. We declared in the bill of rights that "All men are by nature free and have certain inalienable rights, among which are those of enjoying and defending life and liberty, acquiring, possessing and protecting property, and seeking and obtaining happiness and safety." We have further agreed that private property shall always be subservient to the public welfare. We have conceded by the constitution, the right, in the case of public exigency, imperatively requiring the immediate seizure of property the right of the state to do so to promote the common welfare of its citizens. With the limitations that a compensation shall be made to the owner where private property is to be taken for public use, and that all courts shall be open, and every person, for an injury done him in his lands, goods, person or reputation shall have remedy by a due course of law; and justice administered without denial or delay.

Other than these enumerated rights set forth in the bill of rights in the constitution, and not especially delegated, remain with the people. Section 7 of Article XI of the constitution authorizes the commissioners of counties, trustees of townships and similar boards, to levy local taxes for police purposes in such manner and form as the legislature may direct.

Legislative Action.

The state of Ohio was tardy in recognizing all its powers and limits under the constitution, and not until April 14, 1886, did the legislature realize its power and duty to act in this matter, at which time, by Senate Bill No. 90, (83 O. L. 77), it created and established a state board of health. Which act, as is well known to this association, authorized the governor, with the advice and consent of the senate, to appoint seven persons, who, with the attorney general as ex-officio member of said board, should constitute the state board of health. Giving the broad powers to such board of supervision of the interests of the health and life of the citizens of the state.

By the amendment of March 14, 1893, this board has been given the supreme authority in the matters of quarantine, and the regulations for the prevention of the spread of contagious or infectious diseases, and

for governing the conveyance of remains of deceased persons, and such other sanitary matters as admit of or may be controlled by a general rule of conduct. The legislature has added a very important duty, and granted an important power to this board, to enforce orders in local matters when emergency exists, and when the local board of health has neglected or refused to act with sufficient promptness or efficiency, or where such local board does not exist. It is further delegated to the state board the power to pass sanitary rules and regulations that must be enforced by the local board. It has invaded the province of the probate court in being given power over the reports of births and deaths; reports upon the sanitary condition and effects of locality; also on the relation of the diseases of beasts and man; authorizing records to be kept of other valuable sanitary matters for future protection, and for dissemination among the people. It has entered the domain heretofore conceded purely to the local police powers, giving the state board power to investigate and report upon water supplies, sewerage and disposal of sewage, heating, plumbing, and ventilation, and other details that are supposed to inure to the benefit of the general welfare of the community and state at large. They have imposed upon them the duties to be on the alert and recommend legislation when deemed necessary for the more thorough administration of their department throughout the state, and made them the custodian of the reports of physicians and local boards of health, for all contagious and infectious diseases. They have clothed them with corporate powers to the extent of prosecuting in their own name, violations of the health laws. In brief, they have given them such minute paternal powers of government, that a half a century ago would not have been tolerated, even in our liberal form of government. What has been said of the state board of health can also be truthfully said of the various local boards of health provided for under the statute. So that the true extent of the powers already granted by the legislature to the state and local boards has not been fully appreciated by the boards themselves, and especially by the local boards, where the laws for their protection have been somewhat of a dead letter.

But few cities and villages take advantage and enforce the inspection of dairies and slaughter houses, shops, wagons, appliances, food and water supplies of animals, milk, meat, butter, and substances reported to be butter, inspection of the stables, milk houses, milk vessels, adulteration thereof, as they are now and have for a long time been empowered to do. But few of the citizens seem to realize that boards of health may provide for gratuitous vaccination, and may furnish disinfectants and enforce disinfection.

The smaller cities have not yet taken advantage of the medical relief that can be furnished to the poor of the corporation, nor do they provide for the sanitary condition of the schools and school buildings.

And yet, as the courts keep sustaining the legislature, and explore the field by judical approval of these acts, the citizens at large will appreciate year by year more and more what the powers of the state may be "in providing for the general welfare of its citizens." Corporations and citizens have never yet in this state questioned the power or right, in the time of epidemic or threatened epidemic, that such board may have to stop railroad trains, steamboats, fumigate passengers, baggage or freight, and exercise the highest powers of government temporarily over persons and property, independent of courts or juries. All for the sake of the common welfare of society.

The latest extension of this police power by the legislature, was the act passed in the winter of 1896, providing for the inspection of bake shops, which purports to limit the hours per week that an employee may work therein, and forbiding an employee to be discharged because he may have testified as a witness in court against his employer. It also specifically enacts how the room shall be constructed, wash room, plumbing, ventilation, the minimum height of the room, how plastered or wainscotted, how often to be whitewashed per year, expelling all domestic animals save and except the festive tomcat from the room where biscuit, bread or cake is stored.

If this act with all its details withstands the scrutiny of the court, we may look for much additional legislation of this class in the near future in almost every department of the government. Another expression of the legislature extending its powers over the will of the citizens to do as they please in business affairs, is known as the Anti-Sweat Shop Act, passed in 1896, which forbids a dwelling or building to be used, except by the immediate members of a family living therein, for the purpose of carrying on the making of wearing apparel, or for the manufacture of cigars, or tobacco in any form, when such wearing apparel or other goods are to be exposed for sale; unless such room or apartment shall have been made to conform to the requirements of that statute. It then proceeds to give the cubic feet allowed to each person in the day time, and the number of cubic feet for an employee at night. Of a like character is the act passed in April, 1896, regulating plumbing. Plumbers are now required, in cities of 5,000 and more, to pass an examination before a board composed of three practical plumbers and the president of the board of health and inspector of buildings. No person except those passing the examination and receiving the license is authorized and allowed to act thereunder without throwing himself liable to a heavy fine for the violation thereof.

I have thus briefly summarized what the legislature of Ohio has already done toward extending this wonderful and interesting power of government, and appreciate more than ever before the position of Chief Justice Waite of the U. S. Court, when he said that courts had never yet attempted to define police powers in general terms but prefer to pass

upon each particular case as it came before them for review. Equally confusing is it to gather the exact limits of police powers under the state and federal constitution, even from such learned authors as Tiedemans or Prentiss, or Parker and Worthington. And the legislation has been too recent in Ohio to have given the courts an opportunity to define the limits of the rule in Ohio jurisprudence.

SOME OF ITS LIMITS.

I may be able to approach this difficult subject by showing some distinction between police powers and other eminent powers of government. It is not synonomous with the term, nor co-extensive with "The right of eminent domain." Police power deals with the preservation of public health and in the broadest sense with the private morals of the individual members of the community; controls the actions of individuals and regulates the use of their property. While the right of eminent domain is employed for the advancement of a means of commerce and transportation, and for public convenience, and involves always an appropriation of private property. And yet, where private property is destroyed to prevent the spread of fire, for public good, the text books, while somewhat divided on the principle, say that it is the better doctrine to consider it exercising police power, and therefore there can be no compensation for damages for such act on the part of the municipality. And we destroy a building without throwing ourselves liable, to save the life, limb or health of the individuals of the community, on the principle that the health of the people, or safety of the people, is the supreme law, and that there can be no recovery by the party suffering. While if the same property was being taken for the advancement of commerce or transportation in any of its departments, it would be for public good also, and yet the private gains inuring to the corporation would be so much greater than the benefit to the public that they would have to respond in damages and make due reparation. So narrow has the distinction become that many states now provide by statute a compensation to persons injured in their private rights, even when property is taken in an emergency under the police powers of the state, whether by boards of health or municipal councils.

The state of Minnesota passed an act requiring all persons dealing in spirituous liquors to take out a special license in addition to the regular license already required, paying therefor the sum of $10. The act provided that the money so received should be expended in providing an asylum for the inebriates. The saloon keepers contested the validity of the statute on the ground that it provided for a system of taxation that was discriminating and

[illegible] that it was an exercise of police power [illegible] the power of the state

[illegible] is [illegible] by an examination of the [illegible] property is to be a business and [illegible] [illegible] by [illegible] [illegible] [illegible]

issuing the license; second, the value of the benefit of the license to the person obtaining the same; third, the value of the convenience and cost to the public in protecting such business, and in permitting it to be carried on in the community; fourth, an additional restraint upon the number of persons who might otherwise engage in the business.

None of these items have for their primary objects the raising of revenue for general purposes, but so near as can be regulated, making each particular business or occupation requiring such additional expenses, bear its own burden without drawing from or increasing the general revenue fund.

Yet there are legitimate fields for health boards and city councils wherein they may work, for which the pay must come from a general revenue. For that reason the legislature by section 2683, have authorized councils of cities and villages to levy a general tax for sanitary and street cleaning purposes. Section 2140 provides that when expenses are incurred by the board of health under the provisions of that chapter, it is the duty of the council, upon application, to pass the necessary appropriation ordinances to pay the expenses so incurred and certified. And the council is empowered to levy and set apart the necessary sum to carry into effect the provisions of that chapter.

The statute further provides that township trustees, when complaint is made to the clerk of the township, that smallpox or other infectious or loathsome disease prevails, and not within the limits of any city or incorporate village, may quarantine all persons except physicians and necessary attendants, from visiting such house or locality in such township, or from coming into such township from an infected locality in any other township, until the danger of infection or contagion therefrom has ceased. Such trustees have the power to make and enforce all necessary health regulations to prevent the spread of smallpox or any other loathsome disease within the township, and quarantine the localities and families, and are empowered to inflict a penalty of from $10 to $50 against anyone violating such quarantine.

Under section 1544 the board of health of any corporaton may at any time visit and inspect any of the benevolent or correctional institutions established by any municipal corporation, and examine the books and accounts of the same.

A very pertinent question is suggested: "What would be the effect of hostility on the part of the city councils in crippling a local board by refusing to make a sanitary levy, or making an insufficient levy for sanitary purposes." This question is fraught with many difficulties, and the courts have not to my knowledge yet been called upon to settle them. Whether it is purely a discretional matter for the city council to wholly neglect or refuse to levy a tax for sanitary purposes that the courts cannot enforce them to perform, is a query. Or whether a board acting in good faith for the general welfare of a community within its clearly

defined powers, would contract a bill of expense in suppressing a contagious or infectious disease, could not compel by mandamus a tax to be levied to discharge said indebtedness.

Similar decisions have frequently been made by the courts in compelling municipalities and county commissioners to levy a tax where a judgment for damages or other established indebtedness has been awarded against such bodies, and when the matter is tested perhaps the courts will hold this as the remedy.

In closing I might say that the way has scarcely been blazed by judicial decisions, so far as Ohio statutes are concerned, and all good citizens will await with interest the judicial interpretation of the powers of your state and local boards, as they will likely soon be settled in court. And until actual cases arise in which I am compelled to act officially, you will excuse me from answering conundrums or passing upon hypothetical cases.

Thanking you for the interest manifested, and the kind reception of of these few hastily prepared remarks, I bid you good-night.

The President: Gentlemen, you have heard this very interesting paper. It is now open for discussion.

Dr. Merriman: I would like to ask a question or two in reference to the act regulating the appointment of plumbing examiners. The law provides that if there is no building inspector the board of plumbing examiners shall consist of two journeyman plumbers and two master plumbers. In case they fail to meet and organize within the time specified in the act, and to give notice to plumbers to appear before them for examination, does that board exist or is it a non-existent board, or is it within the province of the board of health to appoint another board? And in case there are no plumbers who will serve on that board, the law says that physicians may be appointed. Suppose plumbers refuse, what recourse have the boards of health.

Mr. Monnett: Is that the Dayton case?

Dr. Merriman: That exists at the present time.

Mr. Monnett: I know they have such a case to be presented. There seems to be an infirmity in the law, and if I were the health board and anything required me to act I would require it done regardless of the law.

Dr. Merriman: They failed to meet and organize by electing a chairman and giving the notice, and at our meeting of the board of health last Tuesday evening it was brought before the board and some of the members were of the opinion that no board existed, and yet it was left open until after this meeting, thinking perhaps, we might get a little further light in regard to the matter whether we shall proceed now to appoint physicians on the board, or find out what we should do in such a case.

unless the board of health pays his bill. I would like to know whether, under his contract, he would not have to furnish that attention?

Mr. Monnett: I do not understand what your contract is?

The Gentlman: His contract is that for a certain sum he will doctor the poor of the township, including the village. Whenever he has a case of typhoid fever or anything along that line, he refuses to render medical attention unless the board of health will pay his bill, claiming that he is not bound to render medical attention under his contract in any infectious or contagious disease.

Mr. Monnett: The way to test that is to refuse to pay him because he has not rendered the services, and the court will settle it the first time it gets a chance. (Laughter).

Dr. ———————— New Philadelphia: A word about this new law about plumbing. I find in our city of about six thousand we are having some trouble. The question was raised by a gentleman here concerning the appointment of physicians on this board, and I find in other towns they have the same trouble. These plumbers refuse to go before a board when it is composed of physicians. They say "What does a physician know about plumbing? How much has he studied it?"

I am aware of the fact that a physician should know some thing about plumbing, but they have so many other things that they should know more about than that that they have not time to investigate it. And again in appointing these plumbers there are in a village of 6000 only a few plumbers that are experts, and a good deal of jealousy exists. Now I am of the opinion that it would be well when the legislature meets for them to so amend that law as to appoint a state board of plumbers, and select able plumbers, and say that they prepare a list of questions and send them to the health officer and at certain times hold examinations and if necessary return those manuscripts to the state board. I believe that something of this nature would be of great benefit to smaller cities. Now, I can well see that in a larger city the way the law reads it is not difficult to get along nicely, but in the smaller cities and towns we do have trouble.

Dr. J. S. H. Potter, Hamilton: I want to ask a question about this inspector of plumbing. Our plumbers have passed on the examination of master plumbers, and now the question comes up about the inspector. We have an inspector of sanitary sewers and water mains employed by the gas trustees and sewer commission, and they have a civil engineer who has ample time, so they say, to inspect plumbing. We thought by employing him at a small fee, say $30 or $40 a month additional, that he could do the duties of inspector and save our city from $40 to $60 a month. But the law reads "a practical plumber." In my mind a civil engineer ought to know something about plumbing. An architect cannot lay brick, but he knows when it is laid right. Now the question I want answered is, Can this man be appointed inspector of plumbing?

Mr. Monnett: If you will refer that to the prosecuting attorney and then he to me, I will answer it, because they are made your legal advisers and I would not have any right to pass on it until he had passed on it.

A Gentleman: I would like to ask the attorney general what course a board of health can legally take to enforce the rules when a city council refuses to confirm a city inspector they have appointed?

Mr. Monnett: I suppose you should begin a mandamus suit against them on the relation of your board. If there is no valid objection to him, and he is competent, they have to make a defense and show why they should not confirm him.

The Gentleman: The reason they gave for not confirming him is the expense of it. They propose that we combine the sanitary officer and plumbing inspector in one man.

Mr. Monnett: If you have selected such an officer in good faith you have recourse to mandamus in the circuit court on your relation as a board of health. They are bound to act. They will have their day in court, and the ordinary punishment for refusal to obey mandamus is imprisonment.

A Gentlemen: Do I understand that where there is a lack of journeyman plumbers to form the board, that the entire board of examiners can be composed of physicians?

Dr. Pritchard, Nelsonville: The Hocking canal is a bad one, and our city's surface water has always run into it, and it has formed a stagnant pool right in the centre of our town. I served notice on the officers of the new railroad company who have charge of it to abate it, and the reply was that as soon as the city gave them an outlet they would drain the canal. I referred the matter to the council and they told me again to notify the railroad company to abate. So there I am between two fires and I don't know just what to do about the matter.

Mr. Monnett: Is the railroad company responsible for it? Have they control of the property?

Dr. Pritchard: Yes, sir, the Columbus, Hocking Valley and Athens. There is one fourth of a mile and it has only about 18 inches fall.

Mr. Monnett: Any property owner can petition to have it drained if he owns above or below it, and then the civil engineer will take it and make a profile and have it assessed on the property and regularly drained. I would suggest that you apply to your prosecuting attorney and give him the facts. You can proceed in cases of emergency directly under sections 2149 and 2128. In most cases under these sections the health board can act directly.

Mr. L. O. Morgan, Williamsport: I will say in regard to these contrary people that we have a few. We had quite a siege of diptheria there and Dr. Probst was down with us. We had some pretty contrary ones, but we had less after he came down. Some gentleman spoke about some of the people being contrary, but that didn't cut any figure with us

after we had lost some of our neighbors. We went right to work and did the work and didn't wait to see whether they were going to do it. We gave them a short time to do it and those that didn't do it are paying for it at the county seat now. They are paying for it when they pay their taxes. I bet you it will not happen again there.

Mr. John F. Poorman, Dresden: When you talk about contrary people in localities, that just strikes the position we occupy now. Just got through with it a day or two ago. We have had some diptheria and some scarlet fever down there, and we have to shut them all in the house to keep them from coming out. The township trustees "kicked" on feeding them, and they wanted to know where they were going to get something to live on; they expected to unload it on the township trustees, and they are still expecting to. But there is a point I don't understand, and as long as we can get some information right from the fountain head I thought I would avail myself of the opportunity. (Laughter). Now, where we shut up a family and don't let them come out at all, and if they do, put them in the calaboose, we are not authorized to keep them there and let them starve, are we?

Mr. Monnett: What county are you from?

Mr. Poorman: Dresden, down here in Muskingum county.

Mr. Monnett: You ought to feed them.

Mr. Poorman: We have been having some two or three cases of something between membranous croup and diptheria, and we have had pretty well developed cases of scarlet fever, and we like to deal very promptly with these cases as they come up, in order to keep the disease from getting among the school children. And when we shut them up they "kick" like everything. and the council refuses to do anything.

Mr. Monnett: Enjoin the city from exhausting the levy on other things, and levy your sanitary tax. There should be a regular tax for sanitary purposes.

Dr. Merriman: I suppose there is a limitation to the amount of taxes that they can levy.

Mr. Monnett: Nine mills in some cities and 14 in others.

Dr. Merriman: If there is not sufficient to meet the expenses of a village of 5,000, how are we, as a board of health, going to get funds to carry out the requirements of the law, unless there is a provision by which a sanitary tax, over and above that levy, can be levied for that purpose? It seems to me as though our boards of health should be like boards of education, that is, they should have the power to levy their own taxes and to control it independent of the council.

Mr. Monnett: There is a statutory limitation for different grade cities, and the way they do where they get a municipal tax beyond the limit, they go to the legislature and ask for an enabling act authorizing an increased levy.

Mr. Robert Carey, Upper Sandusky: There is a feature of this plumber's bill that was not spoken of by the attorney general in his paper. The statute provides not only that the examiners and the supervision shall relate to cities, and villages of 5,000 and upward, but also to all cities and villages that have a system of waterworks or sewerage. Now, the question arises, does this statute apply to cities and villages with less than 5,000? Another question is, some say that in some cities or villages we have a system of sewerage; others say, "No, you don't. You have sewers, but you don't have a system of sewers," and consequently don't come within the provisions of the statute. Now, then, if it were conceded that there is a system of sewerage or water works in some of these villages, you would find it difficult to get practical plumbers according to the views of each other. When you say, "Here is a practical plumber, and I will appoint him;" another fellows says, "He is not a practical plumber. He has just had one job. You cannot appoint him." Now suppose in some villages you don't have enough physicians and enough practical plumbers, what are you going to do? Suppose that the city council and board of health ignore that entirely, what is going to be done? There are a great many of these questions that arise. Now in our town one man says we want to have these examiners and this supervision provided for, and another says we haven't any practical plumbers. Another says if we are to appoint all physicians we havn't enough physicians. What are you going to do?

Mr. Monnett: Aren't you city solicitor up there, Mr. Carey?

Mr. Carey: No, sir, I am not. I couldn't be city solicitor and mayor at the same time very well. (Laughter).

Mr Monnett: As I said in this other case, I do not think as long as it is not my duty to solve this until the local court has solved it that I will attempt it.

Mr. W. M. Kurtz, Athens: We have been laboring with the subject suggested here. We have a village of 3,500 and have water works and a system of sanitary sewers, and when it came to the matter of appointing this board, we found we had no plumbers and we didn't know what to do. I called on Dr. Probst and tried to find out through him, and I went away with instructions to go ahead and do the best we could (great laughter). We invited in some of our citizens who were practical and had the habit of keeping their places neat and tidy, and we consulted with them, and finally the board concluded that they had paid enough attention to sanitary matters to form a pretty good idea of a good job of plumbing, so we got up our board, putting one physician on, and then we notified the plumbers to go before them and pass an examination. We all had a hand in asking questions, and after we got through we issued a sort of license to the plumbers and they have been doing our work. The members of the board have been going around inspecting.

As a result of our endeavors we have propably made by this time some 225 or 230 connections with our system of sanitary sewers, but we have some people there who can well afford to make these connections who are not disposed to do it, and we do not know what to do with them. I came up here hoping that the attorney general would tell me what to do, and I see he wants us to go "back" and consult our city solicitor and prosecuting attorney and by and by we will reach him. Now there is another question I would like to ask, and that is this. We have several store rooms in our town that employ quite a number of people. The circumstances are such that the buildings should be provided with closets, but we are unable to induce the property owners to put them in. The building occupies substantially all the ground owned by the proprietor of the building, and the question is this: Have we authority to compel him to go on and put in the closets? We have perhaps a half dozen cases.

Mr. Monnett: Are the buildngs occupied by the employees, in such numbers that it is necessary for the health of the community to have it done?

Mr. Kurtz: We feel that way about it.

Mr. Monnett: If you determine that that is the case, you could undoubtedly order that done. You could also report it to the state inspector of shops and factories. In regard to that other question you asked, there is a general section authorizing a levy.

Mr. Kurtz: That is the difficulty. Our council is not disposed to make the levy. If we go on and contract the bills and certify them to the council we have difficulty to have them paid.

Mr. Monnett: You probably can compel them by mandamus to make a levy of that kind unless they had reached the limit. I would examine further whether the claim should be first reduced to judgment.

Mr. I. N. Robertson, Rushcreek: Now, if the attorney general had keep on he would have satisfied me. I am here in behalf of the township trustees and I would like to know something about their levy, whether they have a right to make a levy to defray the expense of the board of health, or do they pay that out of the general township fund?

Mr. Monnett: I do not recollect a special section for township trustees like villages. There may be one.

Dr. C. S. McCafferty, Chillicothe: I would like to ask the attorney general if it is possible for a council to abolish a board of health?

Mr. Monnett: I think not.

Dr. J. P. H. Stedem, Newark: I would like to ask the attorney general one question with reference to sewerage. Suppose in a village where they have water works that they intend or desire to carry their offal or deposits from privies into a stream near by the village, say within a quarter of a mile, what recourse would the people have in that case? They get ice from that stream and they water their stock there also.

Mr. Monnett: I think that question is in court in half a dozen places to restrain the city from draining the sewage into the stream.

The President. We will now pass onto the consideration of the next paper, which is the "Disposal of Garbage" by Dr. J. P. Heshberger, health officer, Lancaster.

THE DISPOSAL OF GARBAGE.

By Dr. J. P. Hershberger, Health Officer, Lancaster.

This subject may very properly be treated under two heads.

1st, the household disposal of garbage.

2nd, the disposal of garbage from communities or cities.

The household disposal of garbage may be accomplished by either one of the following ways: The simplest of which is by having provided garbage tanks made of galvanized iron with handles attached so as to be easily handled. The best form of tank is a rectangular box about two feet long, by 18 inches in width and 18 inches deep with handles at each end. The tanks should be removed once a week in winter, and two or three times a week in summer. And the contents should be properly buried in pits constructed in suitable locations and soil.

Another way is by the use of a household garbage carbonizer, which is easily attached to the various forms of stoves and ranges without interference with the draft or their use for domestic purposes. These carbonizers utilize the surplus heat from the fire to drive off by evaporation the liquids contained in the waste, and afterwards use the garbage as fuel.

The disposal of garbage from communities or cities is best accomplished by some form of cremation conducted on a scale proportionate to the size of the community or city. I wish to call your attention to the use of the Engle Garbage Cremator, which was in use during the World's Columbian Exposition at Chicago in 1893. Two of these furnaces destroyed the sewage, garbage and refuse resulting from the presence of twenty-seven millions of people which were congregated on the grounds of the fair during the six months of its existence.

These furnaces can be built so that bodies of the largest domestic animals can be incinerated, requiring only about one hour to reduce them to ashes. The cost of operating the furnaces is about thirty cents per ton. Towns of two thousand people can be provided with a furnace that will do its work as economically as those required by a large city.

Another method is the one described by Dr. C. O. Probst on page 86 of the eighth annual report of the Ohio state board of health, for 1893, and which is being used by the city of Detroit, for the details of which I refer you to the original paper.

And thereupon the convention recessed to nine o'clock of the following day.

MORNING SESSION.

January 22.

Promptly at nine o'clock President Miller called the convention to order pursuant to adjournment, and announced that the first paper would be by Dr. T. Clarke Miller, Health Officer, Massillon, upon "Contagious Diseases and the Schools."

Dr. T. Clarke Miller: Mr. President and gentlemen: If I had been aware that our honorable president is to speak on the subject he is today, I might have constructed my paper a little differently, yet it is a subject that if we should both tread somewhat upon the same ground, I think the ground will bear it. The subject which Secretary Probst requested me to present is the management of contagious diseases with reference more especially to the schools. It really involves the management of contagious diseases altogether, so that our president practically has almost the same subject, except that his subject seems to confine him more especially to diphtheria.

CONTAGIOUS DISEASES AND THE SCHOOLS.

By Dr. T. Clarke Miller, Health Officer, Massilon.

No civilized community can afford to hold any of its interests as more important than the conservation of the public health and the protection of human life.

When everything has been said about values, and standards of value, there are no values that are not ultimately measured by the security of human life. In proportion as life becomes precarious, so called property values disappear.

In approaching what seems to me to be one of the most important of sanitary questions, I experience a measure of embarrassment growing out of the conciousness that I am not addressing a professional audience, but a gathering of citizens who are to a considerable extent without special training on professional lines. I shall not aim to interest physicians only in so much as they are also sanitarians. All physicians ought to be sanitarians but the majority of them are not.

I hope I may succeed in presenting what I have to say, without laying myself open to the criticism that my paper is better adapted to a medical society than to a body of men whose presence here is proof that they are greatly interested in all matters pertaining to practical sanitation, but who are not greatly interested in fine technical discussions on the causes and treatment of disease.

The physician is engaged in a warfare against disease and death; as sanitarians we are engaged in a no less noble and more hopeful battle against the causes of preventable sickness.

Our best efforts towards the limitation of contagious diseases must be a failure unless we take the schools into account. Some of the most

formidable of this class of diseases seem to attack childhood and youth by preference. Impressionable childhood entertains the disease germ, propagates it, and passes it along to an innocent and unsuspecting companion. Consequently the health department must maintain intimate relations with the schools.

The almost unlimited power of the board of health must have limits put upon it by the cool and level heads of judicious members. Despotic power, directed by foolish and panicky heads or animated by caprice, will not be tolerated very long. In the minds of the people, the importance of controlling any contagious disease is measured by the danger to the life of those contracting it. The merchandising class will usually be found favoring or opposing measures with an eye to business. So that the work of the board of health must be directed by cool and deliberate heads and executed without fear or favor.

At this time it would be unprofitable to enter into a discussion of the shades of difference to be kept in mind in the application of the words contagious and infectious. The class of diseases under consideration are communicable and the people agree to consider them contagious. The principle diseases of this class to be considered now are, diptheria, scarlet fever, measles, whooping cough, mumps and small-pox. In a sanitary sense much that might be said of any one will apply equally well to the others.

Diphtheria is generally recognized as a dangerous disease which is communicated from one to another. It is a disease which runs a course natural to itself, which may destroy the patient, but if not, recovery occurs because the patient becomes insusceptible to the further destructive progress of the disease—the organism having acquired the ability to resist or neutralize the poison. For these reasons diphtheria is said to be a *self-limited disease.* It is evident that something is conveyed to the well from the sick, that this something is specific and definite because its effects are uniform and characteristic—it gives rise to a disease identical to the case from which it was derived, and may be passed on indefinitely, without material change in its characteristic effects. For these reasons it has been called a *germ disease.* It definitely and unerringly produces its kind as animals do and as plants do. It is claimed that the peculiar germ of diphtheria has been discovered and may be recognized and can be cultivated and propagated outside the human or animal organism with such truth and certainty that the disease may be produced at will.

Most physicians are now disposed to believe that the specific germ peculiar to diphtheria can be recognized under the microscope. The *existence* of the germ is sufficiently proved without microscopic demonstration.

The germs of diphtheria seem to attack by preference the throat and air passages probably because they are conveyed by the air which is

constantly brought in contact with these surfaces in the act of breathing. I think physicians generally believe that the throat and air passages present the most favorable conditions for the growth and development of the germ though it may be implanted on any mucous surface. The germ is probably not thrown off with the expired air in the process of breathing but it is undoubtedly thrown off with the secretions from the mouth, throat, nose and deeper air passages, and right here is where the initial and significant battle to destroy the germ must be relentlessly and sleeplessly waged.

The field of the opening skirmish is the throat and mouth. Some of the wise men proclaim the uselessness of gargles and mouth washes as a therapeutic or curative measure; however this may be, there can be no doubt as to their hygienic value. They gather up the germ charged secretion and make it possible to eject them into a vessel containing a solution of corrosive sublimate. These germ-laden secretions must be destroyed by fire or by poison (disinfectants) as soon as possible after they are thrown off. If these secretions are permitted to become dry on carpets, clothing, bedding or handkerchiefs the germs are then easily diffused through the air as dust and can readily find access to other throats by means of the breathed air. The germ in a moist state is not probably conveyed by the air, but it continues to live in a dry state for an indefinite length of time. The germ of diphtheria may be conveyed more directly from one child to another by the use of lead pencils or pen holders which school children are likely to use promiscuously and which they are likely to put in their mouths.

For the reason that children will constantly moisten a lead pencil from their mouths, the lead pencil is a sanitary abomination in the schools. There are other excellent reasons why the lead pencil should be banished to which I will not refer now. With the precautions referred to and strict isolation of the patient, it is often possible to prevent diphtheria from attacking other children in the same house, and it ought always to, be possible to confine the disease to the family where it is first recognized. Any pateint from without the family going about a person sick with diphtheria or other contagious disease should be quarantined for at least the incubative period of the disease. This is the only way to break up the habit some people have of visiting the sick from curiosity. In this way what may be called a pretty close moral quarantine can be established.

If you undertake to maintain an absolutely rigid physical quarantine, you have constructed a very expensive machine, which, in a serious epidemic would bankrupt an ordinary neighborhood, or even a city in a short time. People held in enforced quarantine have rights. If they are deprived of their liberty for the protection of the people the state becomes responsible for their support and even possibly for loss in probable earnings. Membranous croup is diphtheria affecting the larynx and lower air passages.

Much that has been said of diphtheria applies equally well to other diseases of this group, hence reference to them may be comparatively brief.

Scarlet fever is also a germ disease, although it is not generally believed that the special germ has been demonstrated under the microscope. The germ, however, evidently exists in the secretions, especially in those of the nose, mouth and throat, and it is perhaps not absolutely certain that it may not be thrown off in the act of breathing. The bran-like exfoliation from the skin during convalesence is doubtless rich in the germs of the disease. The same care should be exercised in the destruction of the secretions from the mouth, nose and throat as has been already recommended in cases of diphtheria. In addition to this, scrupulous care should be taken of the exfoliation from the surface of the skin.

As soon as the rash begins to fade, or even sooner, the whole surface of the body should be sponged from one to three times a day, and the sponge or cloth used for this purpose destroyed by fire, or the germs killed by boiling water or poisonous disinfectants, or both. After the surface has been sponged to take up all loose branny exfoliation, the skin should be well annointed with clean oil or even clean lard. From a sanitary point of view, the annointing greatly hinders this light and dangerous vehicle of contagion from being suspended and carried about in the air, and is also, in a measure, destructive to the infective product of the disease. I need not refer to the therapeutic or medical side of the greasing process further than to say that usually it contributes to the patient's comfort.

No physician, I think, would be willing to assure us that a child will certainly not communicate the disease so long as this process of shedding the superficial skin goes on. And for absolute security the child should not be in school until the skin has again became healthy.

One of the early expressions of scarlet fever is the sore throat, hence all children who are known or suspected to have sore throat should be at once excluded from the schools until they present a certificate from a reputable physician that the trouble is not of a contagious or infectious nature. The right of the state to demand this certificate possibly carries with it the obligation that the state should pay for it. The pupil is required to get the certificate for the protection of others, it does not benefit him, and he ought not to be injured, avoidable, for the benefit of others, consequently each school should have an arrangement with a competent physician to examine such cases

No pupil should be admitted to school after an attack of any of this group of diseases until he presents a certificate from the attending physician that he has recovered and this certificate has been countersigned by the

health officer to show that the period of isolation required by law has expired and that other sanitary requirements have been met.

Measles is also a germ disease which is eminently infectious. It is not generaly considered so formidable a disease as diphtheria or scarlet fever, though it is perhaps less controllable from the fact that its communicability is fully developed at the very inception of the disease. The length of time during which it continues to be contagious is also somewhat uncertain though it is not believed to be nearly so long as is the case with either scarlet fever or diphtheria. The germ is not so likely to be carried long distances in the clothing because its vitality when separated from the living organism does not seem to be nearly so great.

The isolation required by the order of the state board of health is probably sufficient in measles.

It is not certain that the breath may not convey the contagium of measles, but without doubt the secretions of the mouth and air passages are the most important vehicle. If a susceptible child is brought into intimate relations with a case of measles, especially in its acute catarrhal stage, it is extremely likely to take the disease.

While it is probable that the germ does not survive long, if it is present at all in the cast-off epithelium from the skin, it is not amiss to take care of the desquamation on the same principles as suggested in scarlet fever. Isolation is the most important and perhaps the only reliable safeguard.

Mumps and *whooping cough* are also infectious diseases. They are no doubt germ diseases although the specific germ of mumps probably has not been demonstrated and the germ of whooping cough is still somewhat in doubt. It is believed that the vehicle of the contagium is the secretions from the mouth and bronchial mucous surfaces. There is evidence in each disease that the germ invades the general system and hence that neither disease is purely local. Either disease must exclude the child from school, and from association with other children. The vitality of the germ in either disease seems to be short and probably neither is often conveyed from one child to another in the clothes or about the person of a third party. The people probably put too low an estimate on the gravity of both these diseases. The only effective sanitary precaution in either case is to keep the well apart from the sick.

Smallpox is also a germ disease, though the germ so far is recognized only by its effects. No other, perhaps, of the contagious or infectious diseases is so suggestive of panic as this. The infective principle exists in the blood and seems to be given off mainly from the skin, while the secretions are not probably apt vehicles none of them can wisely be trusted. The disease does not seem to be carried, effectively, to any great distance by the air, while it is infectious at any stage of the disease and during convalesence until the skin has become healthy again, there is no proof, I think, that the incubative period is attended by danger of

infection. Everything that has been in contact with a patient should be destroyed. The patient should be thoroughly isolated.

The great sanitary precaution against smallpox is vaccination. The time has come when an epidemic of smallpox in a civilized community isimpossible.

Though we have not quite reached compulsory vaccination, there is no doubt, but boards of education have the authority, under the law, to forbid the admission of unvaccinated pupils to the schools.

It is, in my opinion, doubtful whether boards of health can enforce vaccination or order the schools closed against unvaccinated children except when smallpox is present in the community.

The disposition of the courts is to sustain boards of health in all reasonable sanitary measures, the prestige of boards may, however, be sacrificed by unwise or unnecessary acts. I have thought that boards of health frequently use their powers unwisely by hurrying to close the schools on the appearance of a few cases of diphtheria or other contagious diseases in the community. I believe that in a general way the people can be better protected by keeping the schools in operation. Of course if any school room is probably infected, school should be dismissed long enough for the thorough cleansing and disinfection of the room. But I believe as a rule the board of health will succeed better with the co-operation of the board of education and the teachers.

The board of health should insist that all persons afflicted with communicable diseases be excluded from the schools to the full limit required by the rules of the state board and that all persons known to have been exposed shall be kept out of school until the expiration of the incubative period of the disease, and that then they shall be admitted only on the certificate of a physician countersigned by the health officer.

Severe penalties should be rigidly enforced against physicians refusing or negecting or delaying to report each case of contagious or infectious disease coming within their professional knowledge. It should be a routine practice with the health officer to at once notify the school authorities of each case reported. A public sentiment must be cultivated which will not tolerate any one affected with, or who has been recently exposed to, an infectious disease, of the class under discussion, in any school, Sunday-school, church or anywhere else but at home, until they can be officially pronounced clean.

Dr. D. N. Kinsman, Columbus: I have been intensely interested in these discussions this morning. I have had the honor of being the health officer of Columbus during the last four years. We have had a complete list of deaths for the city of Columbus for eight years. This last year we carded 187 houses for diphtheria. We have found in the eight years that the month of November has exceeded all other months in the year (by nearly double) in mortality from diphtheria which shows that in the month of November the germ exists in

Columbus more potently than at any other time in the year. The cases fall off from November on both sides, beginning to increase in September and to decrease in December, and fall off to the lowest in the month of May or June.

Now, in regard to the germ idea, we must keep in mind that we have two forms of infection of the throat, and both are from bacteria. In both there are membranes; one depends upon what is known as the Klebs-Loeffler bacillus, and the other upon a streptococcus. It is a fact well known that most of the cases that die are mixed infections, and Dr. Biggs of New York, who has made a report on this matter, says that most of the cases that die in which antitoxine has been used early, die from streptococcus infection, against which antitoxine is powerless. Roux said in his article that he read in Buda Pesth that most of those that died after having using the antitoxine had developed bronchial pneumonia, and you will find a large number of fatal cases show this kind of infection. This being the case, it is not fair to charge a want of success in the use of antitoxine to failure of this agent. If streptococcus infection is present in the body the antitoxine does not combat that. It goes on without any relation to the antitoxine at all, and if the infection is severe it will kill. So that in our final decision upon the value of antitoxine, we must remember that there is always a possible infection that may of itself be fatal that cannot be controlled by antitoxine.

Now, in regard to antitoxine, I am thoroughly pursuaded that it is an agent that is more powerful than anything else that has ever been placed in the hands of the medicial profession for the cure of diphtheria. I am quite sure of another thing, that it will not only cure, but immunize, and it should be used for this purpose in all cases where there is an appearance of this disease in a family; that is, in the persons that are not yet suffering from it. It is doubtful, however, whether immunity extends over more than three to four weeks.

Another point in the use of antitoxine. It must be used early, as soon as the clinical diagnosis is established. The statistics that Biggs has been collecting establish something like this: that of those who are treated with antitoxine during the first forty-eight hours, not more than five per cent. die; if treated the second forty-eight hours the death rate increases to nine per cent.; if in the third, it increases to fifteen per cent., and goes still higher if it is used later than that. So that in the use of antitoxine if you expect to derive any benefit, it must be used early, and the earlier the better.

I have seen within the last three years some very remarkable instances of recovery from diptheria by the use antitoxine where no other measures were used. I have seen cases of croup that I would have sworn almost would have died within eight or ten hours, relieved by the injection of antitoxine. I have seen that in quite a large number of cases and I am prepared to say that today it is the best treatment for

membranous croup. Now, I am not prepared to say that all cases of membranous croup are diphtheria, and yet when bacteriological examinations show that over eighty per cent. of the cases of membranous croup have the Klebs-Loeffler bacillus present, I am prepared to say that in eighty per cent. we are justified in using antitoxine anyway, and that in the other twenty per cent. it does no harm.

I am quite well satisfied that the reported cases of accidents and deaths from the injection of antitoxine have not been due to antitoxine. No doubt there are accidents that occur in the use of antitoxine which the physician cannot forsee, and the result may be death. You understand that a child that is enfeebled by diphtheria has a weak heart, and if the child is afraid of the introduction of the antitoxine, the struggle against its use itself may terminate in final paralysis of the heart.

Now, in regard to scarlet fever: We have had 280 cases in this city this year, and out of 280 cases we have had one death. From diphtheria we have had thirty-seven deaths, less than one half the number we had last year. Pretty nearly the same number of houses were placarded for diphtheria and the mortality has been less than half.

Another point: It seems a curious fact that diphtheria seems to become implanted in communities and produces very dire results and then disappears altogether. Dr. Merriman, of Painesville, said they had many cases there some time ago, and this year they have not had a case.

Dr. Merriman: Not a case in four years.

Dr. Kinsman: Now, that shows as clear as anything to me that this bacterial presence is not universal, because if it were we should have universal suffering from it. I remember the early history of this disease, back in '59 when the invasion of diphtheria was confined to the ridges of the state of Ohio, and for some months it was confined to the high lands of the state, but it subsequently invaded the lowlands.

Now, in regard to scarlet fever, I do not know what the experience of the state at large is but here we have had for four years quite a widely extended prevalance, but the mortality has been low. It has been so mild in the city of Columbus, that the question has come up in the Academy of Medicine whether we really had scarlet fever. In Sydenham's time they were bleeding all their cases and all got well, and he scouted at the disease and called it the "ghost of a disease." Trousseau says that in four years thereafter scarlet fever became so malignant in England and Ireland and Wales that it visited every household and covered the land with mourning.

I want to say another thing and I shall now talk to the state board of health.

You know that consumption is a germ disease, a bacterial disease. I say as an individual health officer of one of the great comunities of the state of Ohio that if there is any disease that demands your attention it is consumption. I have always as far as possible, carried out the recommendations of the state board of health. Gentlemen, I

want to congratulate you upon the magnificent work you have done and are doing, and I want to say to you as far as you have gone you have my hearty support and confidence, but I want you to go further and place consumption on the list of reportable diseases. (Great applause.)

REPORT ON DIPHTHERIA IN HANCOCK COUNTY CHILDRENS' HOME.

BY DR. J. P. BAKER, FINDLAY.

An epidemic of diphtheria caused by negligence instigated by fear of pecuniary loss forms an excuse for this paper.

The latter part of December, 1895, two children convalescing from diphtheria visited in the family of the postmaster at West Park, a suburb of our city.

In addition to the postoffice a small stock of groceries and provisions were kept in the same room and the family residence was in the remaining portion of the building. The inhabitants of this part of the city received their provisions and mail here, and the proprietor was assisted by his wife and some of the older children when they were not in school.

On January 11 and 13, 1896, one child and one adult were taken ill with sore throat. On February 6, another child became ill and a physician called who pronounced the case diphtheria, but on account of the poor light decided to see the child again in the morning before making a positive diagnosis and reporting the case to the health officer.

The next morning he was informed that the child was improving and that it would not be necessary for him to call again.

A couple of days later a second physician was called and after examining the case was asked if the child had diphtheria. There being no exudation in the throat his answer was in the negative. But after seeing other cases in the vicinity and hearing a history of the case from the first physician returned a couple of days later and informed the parents that he was satisfied that the children had had diphtheria. The cases were never reported to the health officer and the children when convalescing were in the grocery, waiting upon customers, who many times were children, sent by their parents for different articles needed in the household. Other cases followed in the vicinity; on February 17, three cases in one family; on March 1, one case; on March 14, two cases and April 20, one case. On May 7, the first case occured at the Orphan's Home situated about three squares from the postoffice. The case was removed at once, hoping to prevent any further outbreak, but on May 9, two cases and on May 11 one case occurred.

These cases were isolated and every precaution taken to prevent the other inmates from coming in contact with the contagion. All dishes were thoroughly washed and the clothing immersed in a disinfecting solution before being returned to the kitchen and laundry, the nurses taking their meals and sleeping in this part of the building. On May 31 the first cases still remaining in quarantine, three more cases occurred fol-

owed on June 1, 3, 4 and 6 by four others. These cases were released on July 3, and on July 5, 22, Aug. 24, and 28, and Sept. 2, other cases followed. The last four cases were not released from quarantine until October 24, when the entire building was thoroughly fumigated, and the home thrown open to receive children. On November 9, two cases occured two squares from the home and one square from the grocery. On November 21, all the children attended a pound party given in the assembly room of the court house for their benefit, and the next day, November 22, I was called and found three cases, two of these patients having been admitted on November 14, and the other one on November 4. Other cases occurred on November 23 and 25, and December 4, in children who had been inmates of the home during the former epidemic.

On December 1 and 12, two cases occurred in a family residing about two squares from the home and on December 9, one case about five squares.

Every clue was investigated to discover the cause of the second epidemic, but no definite cause could be discovered, and it was concluded that the two children admitted November 14, must have been exposed before admission.

On November 28, Dr. Probst the secretary of the state board of health, visited the home and with the local health officer made a thorough examination of the building. Everything was found in excellent condition except the heating apparatus. The building was heated by two furnaces. In addition to the hot air pipes to each room there were cold air pipes from each room, carrying the cold air to the furnaces, where it was heated and again distributed to all the rooms in the building. This furnished an excellent means of conveying any disease of an infectious or contagious nature from one part of the building to another, but could not have been responsible for the origin of the disease. And as the furnaces were not in use during the summer months they could not have been responsible either in the origin or distribution of the disease during the first epidemic. The question arises, what was the cause of the appearance of the disease on May 31, and soon thereafter, and prior to the release of the first cases from quarantine? What was the source of infection, in the case which was taken ill on July 5, two days after releasing the second group of patients? Was there something about the building which was a constant source of infection? If so we were unable to locate it. The defect in the heating apparatus was remedied as soon as discovered by closing the cold air pipes and furnaces and allowing no air to enter from the basement, fresh air being supplied through large pipes from the outside of the building.

Of the twenty-two cases occurring at the home, sixteen received the antitoxine treatment, two of the cases being laryngeal. All recovered.

During the past year I myself have treated and in consultation with other physicians, have seen eleven cases in addition to those occurring at

the home, making a total of thirty-three cases. Antitoxine was used in twenty-five of the more severe cases. Eight of these cases were of the laryngeal form. One death occurred. Bacteriological examination was made in ten cases.

10 cases received the antitoxine the first day.
4 cases received the antitoxine the second day.
4 cases received the antitoxine the third day.
3 cases received the antitoxine the fourth day.
2 cases received the antitoxine the fifth day.
In two cases the stage of the disease was indefinite.
13 cases received one injection.
10 cases received two injections.
1 case received three injections.
1 case received four injections.

In my hands this treatment has been perfectly harmless, as I have observed every symptom closely and failed to find any deleterious results from its use.

In closing I would suggest that some action be taken at this meeting whereby the local boards of health in the different cities throughout the state may furnish anti-toxine to their indigent patients, as it is a remedy which should be withheld from no one.

The anti-toxine used was manufactured by the H. K. Mulford Co. of Philadelphia.

Dr. Merriman: I wish to say something in regard to quarantine. I fully concur with Dr. Miller in regard to certificates of the family physician. I wish to quote a remark which was made at one of the former sessions by a health officer, that a health officer should be independently rich or else he should be independently independent, and if the duration of the quarantine is to depend upon 'the cetificates of the attending physicians we shall very soon find that if we release them from quarantine on those certificates that we shall have a spread of the epidemic whether it be diphtheria, scarlet fever, or any of the other contagious diseases. We have considerable difficulty in our village in regard to this matter. A great many were anxious to get out of quarantine and the family physicians would finally give way to their importunities and issue a certificate. I stood out boldly against accepting those certificates until a specified time, and would not issue certificates of readmission to the school. We finally persuaded our board to establish a minimum term for quarantine which was for scarlet fever thirty days from the inception of the last case, and for diphtheria about the same time, and since that it has been a great deal better for the attending physician because he could say "I have not anything to do with it because the board of health has established a quarantine and you must abide by it." And I have succeeded much better. I think boards of health should establish a minimum time.

Our board established a minimum time of thirty days, and left it with the health officer whether the quarantine should be continued, because in some cases desquamation from scarlet fever continues, and the time ought to be extended.

Now we have a good deal of trouble in the mild cases of scarlet fever, to get them reported, and we have physicians in our place who say that they do not believe that there has been a case of scarlet fever in the town. One of those physicians attended a family and there was a child sick perhaps a week or so, and when it returned to school the teacher noticed the hands were peeling off. The next day I went there and told the child to take his books and go home and remain there a couple of weeks, and told the teacher no one should come from that house for two weeks. It raised something of a disturbance but the child went home and stayed there.

Mr. Oldham, Cambridge: We have had scarlet fever and diphtheria and have followed the rule of the state board. The doctor notifies the health officer that he has discharged the case. The health officer goes to the house and sees that it is disinfected thoroughly and from that on (in diphtheria) the case is isolated fourteen days, and in scarlet fever ten days. There is no deviation from it.

Dr. Merriman: I wish to say a word in regard to measles. I do not believe in quarantining measles, but I do believe the placarding of the house is a good thing, at least for people who have never had the disease and wish to keep clear of it. They will keep away from houses that are quarantined. That is the only good I can see in quarantining against measles.

Dr. Probst: I am very glad to see the position that Mr. Miller takes in regard to closing the schools. I think that is one of the important points in his paper that ought to be discussed. The law provides that the board of health "may, during an epidemic or threatened epidemic, close any school, and prohibit public gatherings for such a time as it may deem necessary." Many of the boards have assumed that there was a threatened epidemic on the appearance of a single case of diphtheria, and as the easiest thing to do have closed the schools at once. This has given rise to a great deal of dissatisfaction among boards of education, school teachers and parents, who think the children are being needlessly excluded from school, and I was glad that Dr. Miller advocated that it is often wise not to close the schools.

There is one point in Dr. Miller's paper that I wanted to ask him about, and it is one of some importance I think in connection with the spread of smallpox. If I understand the position that the doctor takes, it is a little uncertain whether smallpox is contagious during the incubative period, that is, before the fever; do I understand you rightly, doctor?

Dr. T. Clarke Miller: It is a little uncertain in my mind whether it is fully settled that smallpox is contagious in its incubative state. I

do not mean after the initial fever has set in. I think after that unless you have been vaccinated you would better stay away. But in the incubative state before the initial fever, I am not sure but that it may be contagious. That is, it *may* be. That is the matter I am in doubt about.

Dr. Probst: Then I am in entire agreement with Dr. Miller's position. Some physicians maintain that smallpox is not contagious until after the eruption appears, and consequently in dealing with people who have been exposed to smallpox they would not consider it necessary to quarantine them if they had been exposed prior to the eruption. I would maintain that there is danger.

I understood the doctor to consider that smallpox may not be carried very far through the air, and that presents an important matter. I have considered it possible that it might be blown as far as across the street.

Dr. Kinsman: I have one word in regard to what Dr. Probst was asking about, the distance to which the contagion of smallpox will be carried or transported. I have two cases that are of interest on that subject. Many years ago I was health officer in the town of Lancaster, and at that time we had 87 cases of smallpox that had broken out in the city. The house in which the smallpox was was 150 feet away from a house in which an insane man had been confined in a single room for many years. During the continuance of this first case the family went out into the back yard and hung up clothing, I suppose, and that crazy man, who had not been out of the house for six years, took the smallpox and died of it.

I had another case which was still farther. It was 500 feet. One time a case came from the city of Cincinnati and died in the town of Lancaster the night of its arrival. The case was reported to me the next morning, and I went down there to see it and find out about it, and I found that they had burned the mattress on which the child had died, in the lot in the rear of the house, and the smoke had gone across the street to another house, as I say five or six hundred feet away, and entered and a case of smallpox developed there within of two weeks.

Dr. J. A. White, New Concord: In regard to whooping cough I should like to ask how long children should be kept out of school?

Dr. T. Clarke Miller: I do not think I can answer that question. I do not know when whooping cough ceases to be infectious. I believe in a practice perhaps not purely sanitary. It is a good thing to keep them out until they no longer cough; anyhow until they no longer whoop. I suppose after the acute stage of the disease, say three or four weeks, it is not an eminently contagious disease. They are not fit to be in school. It is not justice to the children and it is an annoyance to the school. We have no regulation about that. While our board requires the reporting of whooping cough, we do not enforce it very rigidly from the fact that we are not able to. I think

75 per cent. of our whooping cough cases have not been seen by a physician. Of course that cuts us off, but I think it ought to be kept out of the school until they do not disturb the school. But that is not a sanitary matter.

Dr. L. F. Laudick, Lima: The subject of whooping cough and measles interests me quite a great deal. When I first took charge of the health department at Lima, last March or April, we had an epidemic of measles. I placarded all houses in which cases were reported. Our assistant superintendent of the public schools had the measles in his house, and this went on for several days, when a patient of mine living not far away said to me, "I thought you placarded the houses that contained measles." I said, "We do when we are informed." "Well," he says, "our assistant superintendent has the measles, and one of his children is going to school right along." The attending physician said nothing about measles, and the result was that we didn't placard the house at all, but I got after the family physician and put up a card. We had a very extensive epidemic of it and I do not believe you can quarantine it or control it. It is very well to put up a card and let people know it is there, and if people don't want to go into it they don't need to. I have never had a case of whooping cough reported to me since I have been in office. One day a little fellow who had been in my office went out and leaned up against a telegraph pole and began to cough, and finally a cigar man said to him, "What is the matter with you?" And he says, "I have got the whooping cough, but I can't whoop worth a damn." That is the way with these cases. They never run them down and report them to me.

I do not know whether the good Lord has favored Lima or not, but we have had but four cases of diphtheria since I have been there and one death, and they were in three houses, and did not extend beyond the house. I quarantined those to this extent, and I would like to ask for information on that point. In two of the families the gentlemen were prominent business men, men whose time is very valuable, and our instructions are to quarantine thoroughly, and to allow nobody to pass and repass except those qualified, but I did let those gentlemen pass and attend to their business. One was in a railroad office and the other I don't remember his business, but I gave them distinct instructions that they were not to visit the patient. We had the patient isolated. But when you come down to that, I don't know your next door neighbor, but you cannot trust him to keep away from his own child. If he has a sick child he is going to see that child, and if you make strict quarantine what are you going to do?

The President: In the epidemic spoken of at Ashtabula, the man of the family was obliged to leave the house and go to a boarding house to live.

Dr. J. W. Russell, Tiffin: You know it is easier to preach than to practice. I know if I were to carry out what I preach I would want a larger salary. Now in regard to quarantining. Talk about a business man; any man that has a job is a business man, I don't care whether he is a merchant or whether he works in a pottery or in a glass-works. That becomes a serious question with me. It is those men who come to our hearts. It is not the banker. It is the man who works in the pottery and glass-works; it is the man who gets thrown out of a job on account of quarantine. He says to me, "What am I to do if you keep me away two weeks? What will you do with my family?" I say I will do the best I can. You isolate his child, put him up stairs and get some friend to take care of him. I tell you I am one that cannot hold out that quarantine as I would like to, for that reason, and furthermore, it may be only tonsillitis, and it is a wise physician that can diagnose and tell the difference between follicular tonsillitis and diphtheria. In the last few days I have had three cases of follicular tonsillitis, and I am looking to Providence to carry me out, and I do not know how I will get through. Some time ago we had a small epidemic of diphtheria and I said to the board, I think it would be very wise for you to get a couple of vials of antitoxine, and for those that are not able to pay for it let the board pay for it. The board granted it and we have antitoxine there, and I am an advocate of it; if my children get diphtheria I will use antitoxine. I have just as much faith in antitoxine as I have in vaccine virus. We have had in the neighborood of about 20 cases of diphtheria during the year.

Now, another matter about the outbreak of diphtheria. It seemed that all the cases came from one school grade. Nothing was found particularly wrong about the school building except in the closets in the cellar. This building is a very old building. It has been remodeled of late years and the closets were put in the basement. So we recommended the building of outdoor closets and abandoned the basement closets and also the cistern water. At the present time we have no cards up for diphtheria or scarlet fever. We have one or two for typhoid fever.

A Gentleman: I want to ask whether the burning of sulphur after a case of diphtheria is sufficient for a house without anything else. Our doctors recommend burning of sulphur. We have not been using anything else in our town.

The President: It is very doubtful if sulphur fumigation will kill the germs.

Mr. O. C. Andre, Waverly: I think I can answer the question of the gentleman who just had the floor. I think there is a point generally overlooked by the local health boards. Sulphur in sufficient quantities will undoubtedly kill the Klebs-Loeffler bacilli. But to make it effective there is usually one condition which is overlooked, the air should be moist, and a sufficient quantity of sulphur should be burned, at least

three pounds to every one thousand cubic feet of air space, and all of the openings of the room should be closed several hours.

And now, another thing, if we quarantine, say against the heads of families, the physicians who visit the families should be quarantined against. I happened to have a case of diphtheria in my own family. I only found one way to prevent carrying the contagion and that is to have an anteroom and there make a change of clothing. We should have an anteroom in which the clothing should be changed and prevent any person from going in or out of the room in which the patient is sick, unless he makes a change of his clothing and have the room charged with some disinfectant.

The President: We will now listen to a paper by Mr. John P. Force, city engineer of Fostoria, upon "Land Disposal of Sewage."

LAND DISPOSAL OF SEWAGE.

BY MR. JOHN P. FORCE, C. E., FOSTORIA, O.

It is pretty generally acknowledged that our sources of public and private water supply are too often subject to pollution from putrefying organic matter.

The household well or cistern often receives the leachings from the leaky sewer, vault or cess-pool. The public water supply, if drawn from wells, is liable to the same source of contamination, and if taken from a stream, in all likelihood the stream receives the sewage of a neighboring town a few miles above the intake. Thus the water which we drink, and which is necessary to our very existence, though it may sparkle in the glass and appear to the eye clear and limpid, is perhaps charged with the germs of disease which renders it a poison worthy of a Borgia. This deplorable condition is becoming more serious each year owing to the increasing population of towns and the crowding together of inhabitants, each one furnishing his quota of putrescible matter, which goes to swell the sum total of what is called garbage and sewage.

The fact should be apparent to all, that if we would preserve the purity of our water supplies we must remove the source of contamination. Not only should we take steps to preserve our own, but we should avoid polluting the water which must be used by others.

In the middle ages men fortified their dwellings and towns against the attacks of neighbors, who came with fire and steel to sack and slay. Today we attempt to protect our sources of water supply from the encroachment of our neighbor's filth. This condition of affairs is not in keeping with the enlightenment of our age. Our duty to ourselves, our families, and our neighbors demands the prompt removal and efficient disposition of all filth that may contain, or become the breeding ground for, germs of disease. For the prompt removal of excreta-

organisms in the filter and may prevent nitrification wholly or in part unless neutralized by the addition of an alkali before its application to the soil. This could be done at the works discharging such refuse, and should be insisted upon and regulated by the authorities of towns having systems of land disposal. The question of whether or not the sewage will have to be lifted by pumping will affect the cost of construction and operation. The disposition of the sludge, if removed by sedimentation before purifying the sewage, is of importance, and will always be attended by expense. The sludge is of little or no value as a fertilizer and must be disposed of.

The writer believes that the best way to dispose of sludge, when in large quantities, is to burn it after extracting the greater amount of water contained by pressing or drying. Sludge is sometimes deposited on beds, and after draining removed and applied to land.

Filter beds when properly regulated are practically free from odor. Sludge beds on the contrary are the source of disgusting odors and should never be located near any dwelling or highway. The presence of properly designed and operated systems of land disposal of sewage near towns and public institutions is not found to be prejudicial to health, and the objection to this form of treatment by reason of alleged odors, often urged by those not acquainted with the best practice, or especially biased towards some other form of disposal, has no foundation in fact.

In general it may be stated that as the most perfect process of purification yet discovered, as the only perfectly natural one, and as a system within the reach and means of all cities and towns with but few exceptions, land disposal of sewage offers the best protection against the pollution of our water supplies.

Dr. Probst. I believe there is a filtration system in operation in the state of Ohio, and that is at the Ohio state reformatory located at Mansfield, and I believe Mr. Force has two samples which will show the sewage before and after filtration. The plant has been in operation only a few weeks. Here the samples are shown.

Mr. Force. The plant has been in use only about thirty days, and being started in the winter time the results are far better than I expected. It takes about two months in the summer time to start a bed and get it in proper condition.

Dr. J. A. Wilce. In regard to small towns where they have not a system of sewers, what is the best plan in building privies and the disposal of sewage?

Mr. Force. I think that is a little outside the line of my duties, and I have not had much experience in that line of work.

Dr. Wilce. The thing I want to know is whether we should dig wells in the ground, use boxes, or what is the best plan in a case of that kind?

Mr. Force: I should say the box constructed above the ground, and the sewage emptied and applied to the surface of the land would be the best way, where you have no sewer system. If you took the contents of a privy after it had stood for some time and applied it to the land, it would be very foul and offensive. That is the difference between the disposal of fresh sewage on the land, which is not disgusting, and the disposal of night soil. I should say a tight box frequently emptied and the contents applied to the surface of the soil, would be the best way.

Dr. Hoover: With reference to the question that was just asked, about the disposal of night soil. We are all aware of the fact that the earth is one of the best destroyers of night soil. It disposes of it readily and without any very disagreeable odor. In small villages, and I do not know that it would not apply to larger places, I think the dry earth system commends itself. It requires some expense. That is the great obstacle to perfect sanitation in all communities, but you cannot have any good thing without paying for it. The expense would be very small. This plan consists in the construction of privies in such a way that the droppings can be received in a tight box, and some sort of an arrangement for holding dry earth. The kind of earth is not material, if it is just good clean earth collected from the fields and kept there until the moisture is dried out. After each deposit is made a small amount of this dry earth is sprinkled over it. This box can be taken out in a wagon and emptied on the field and plowed under. Where you construct vaults for the reception of night soil the vault should be absolutely water tight. Now, that is very difficult. We have never discovered anything that is absolutely water tight, and in these towns where the supply of water is from the wells it is only a question of time when the soil becomes saturated from the numerous cess pools and the drinking water supply becomes polluted. I believe if people could be educated up to the dry earth system in small towns where there is no system of sewerage, that it would not be but a little while until their convenience and cleanliness would recommend them and secure their general use.

Dr. Stanton: I would like to offer a resolution. We have had a number of interesting papers presented by members of boards of health; it was their duty to present them and they deserve no special thanks for it, but we have had some papers presented here, very interesting and instructive, by persons who are not particularly engaged in our line of work. I therefore move that to Professor White, Professor Bleile and Mr. Force we extend a vote of thanks of this association for the instruction they have given us, and for the interest they have lent to this meeting.

Motion carried unanimously.

And thereupon the convention recessed until 1:30 p. m.

AFTERNOON SESSION.

January 22.

In the absence of President Miller the afternoon session of the convention was called to order by Dr. R. D. Kahle, of Lima, who announced that the afternoon would be devoted to the discussion of questions sent in by the local boards, and requested those having questions to propound to send them up promptly.

Question: In case of scarlet fever how long must persons stay in after the house is fumigated?

Dr. W. N. Unkefer, Piqua: We have had a great deal of scarlet fever and also diphtheria. Some cards I leave up for two weeks after the physician states that they are convalescent, but still they peel off some. I have taken some down in two weeks. I always examine the cases before I take the card down. It is the same with diphtheria. I never permit them to go to school until several weeks after recovery.

Dr. C. S. McCafferty, Chillicothe: On the second page of the rules and regulations of the Ohio state board of health it says, "Isolation of the patient and quarantine of children associated with or in the house with the patient for ten days after complete desquamation or scaling of patient and disinfection of the premises."

Question: Are boards of health responsible for pay for fumigation?

The President: If that means pay for the material and for fumigation, I would say that boards of health generally pay for that.

Question: When families are quarantined are boards of health responsible for pay for nurses and food?

Dr. Merriman: I suppose that if they are not able to supply themselves with food, if the people are in indigent circumstances, a day laborer who is dependent entirely upon his labor and the board of health quarantines him the board of health is responsible for his protection and provisions and should certify the cost to the council for payment, and the council would be compelled to pay it.

Dr. A. A. Brooks, Orrville: In cases of contagious diseases, such as smallpox, scarlet fever or diphtheria, where the people are perfectly able, I would hardly think that the board would have to pay for even the disinfectant.

Dr. Porter Hamilton: I do not think that they would have to pay for it where the people are able to pay, but that was talked of yesterday. I think it would be a good thing if boards of health would take charge of all fumigation and disinfecting, and have the sanitary or health officer take charge of it and do it and pay for it. Now, with a great many people it is said that the nurses [illegible] upon to let them do pretty easy. For officer fumigate every place works on fifty cents a day. or know if I am wrong.

Question: Can anything be done to prohibit the Barberton Match and Strawboard works emptying refuse into the canal and killing fish?

Dr. Merriman: I think there is a state law that settles that without and discussion.

The Chairman: There is no question but that can be prohibited. The state law is very explicit on that point.

Mr. George Becker: The strawboad works of Baltimore, I believe, have been discharging refuse into the stream and it is killing the fish. Legal proceedings have been commenced against them, but the conclusion I have not heard.

Question: What is the duty of the health board in regard to syphilitic pupils and pupils of syphilitic parents?

Dr. C. A. Burke, Johnstown: I would say that this is a question that few people have to deal with. But we, fortunately, have a case in our midst.

A Chorus: Fortunately?

Dr. Burke: Fortunately, that is, we get the experience. I do not wonder that there is no discussion upon the subject, because it is not of much interest to a great many, but our board of health is placed in a position that perchance some others may be some time. The state law in regard to that does not mention syphilis among the infectious diseases to be quarantined, and yet we all know it is infectious, and the course that has been pursued by the board of education is this. They have taken the subject up and excluded the pupils from the schools pending a medicial examination, and that was referred to the board of health. Now, the question is, what is the duty of the board of health in regard to it? I will say that the pupils are not syphilitic, that is, a diagnosis of syphilis in them could not be conclusively made, but there is no doubt about the matter and about the ancestors back two or three generations.

The Chairman: And the children themselves have not an acute case of syphilis?

Dr. Burke: The only thing is the eyes of all of them. They have trachoma. What we want particularly to know is regarding the syphilitic tendency. If it is infectious and the board of health takes any action at all, would it be quarantine or what would it be?

Dr. Probst: This question came up before the state board. It is a new question, and I did not feel like risking an opinion myself and carried it to the attorney general, and he advised me to advise the local board to exclude those children from school. Yet it is a very delicate question to handle. I submitted the question to Dr. Bleile last night as to whether a child who had inherited syphilis had a [illegible] disease, that is, whether that child was liable to transmit the [illegible] child. The doctor's opinion was that that child didn't [illegible] disease; if the child inherits the disease it doesn't have

a disease that it can transmit, and therefore it would not have a disease that the board of health could prohibit from the schools.

Dr Merriman If the children have an affection of the eyes they could exclude them on account of the contagiousness of the eye disease and not on account of syphilis.

Dr C S McCafferty Before you leave that subject, are boards of health necessarily compelled to take care of the quarantined? I believe the impression is that they are compelled to do so. The law doesn't say that The law says it may provide, but in no instance does it make it mandatory It is the duty of the township trustees to provide for them.

Dr Merriman A point in regard to another infectious disease, scabies I think the pupils can be excluded from the schools because they are suffering from scabies, and yet I do not believe a board of health would be justified in going around and placarding a man's house and saying that he had a syphilitic disease. Simply exclude them from the school on account of the sore eyes, and they are precluded and not quarantined.

Question In case a special meeting of a regularly organized board of health of an incorporated village becomes necessary by what means is such meeting convened? We thought the mayor ex officio member of the board of health and president of the same should instruct the health officer to notify the members of the time and place Asked by Dr F. Rose

[illegible]

favor of having the sanitary policeman enforce the law and arrest them. We arrested one of the prominent ciitzens of Piqua and it had good effect; and we also arrested a physician for not reporting his cases, and we had no more trouble afterwards. I think it is all foolishness to close the schools in case of an epidemic. The children run around the streets and come in contact with each other as much as at school, and the matter of education is a serious thing. We must keep the people in, we must make them stay in. That is half our business, because you cannot keep an epidemic from spreading if you let one or two go out. We had a policeman that didn't do anything else but just go from one house to another. We have had 150 cases of diphtheria in the last three or four months and it kept a sanitary policeman busy, and it wasn't long until we could see the effects of it.

Dr. S. C. Sims, Spencerville: The reason that I asked that question is that we had two cases that ran at large for several days before they were reported. They were sick, but they attended Sunday school and had been in a number of families. Quite a number were exposed and we decided to postpone the school.

Question: What authority have boards of health at present in incurring expense upon the corporation by ordering microscopical examinations of suspected diphtheria cases, or by furnishing anti-toxine to be used in cases of the poor?

Dr. Probst: I think there would be no question about the board having authority to expend money to determine whether a child or other person had diphtheria. That is a part of their duty to find out whether there is a contagious disease, so that they may take the proper precautions. I think there would be no doubt about their being authorized to purchase anti-toxine if they were going to use it for the prevention of diphtheria. We were told this morning that we might immunize, that we might inject the patient and prevent his getting the disease, and that would be in the line of the duty of the board, but to supply anti-toxine for the cure of their trouble is a new departure. Some of the boards of health of the larger cities are doing that, but there might be a question as to whether they had the authority to do it unless council authorized them to expend money for that purpose. That is the view I take of it. I think boards of health want to keep in mind their duty to prevent disease and not to cure it. But in the case of poor people who are unable to afford this new remedy, council should supply it for that purpose.

Question: When is a country school house in a good sanitary condition? Would like an answer from Dr. C. O. Probst.

Dr. Probst: Mr. Chairman, it is difficult to answer that question. [redacted] a good many things that come in in the sanitary condition of a [redacted] It wants to be properly located, but that the board of health [redacted] control. Then the ventilation is to be look after. Most

of them have the ordinary stove for heating purposes, and no ventilation except by the windows. The water supply would perhaps be one of the most important things for the board of health to look after. For instance, if they found the well that was ordinarily used to supply water was in such a position, with reference to the vaults or stables, that it was liable to be polluted, or should prove upon chemical examination of the water to be polluted, there is no doubt in my mind that the board of health would have authority and it would be its duty, to close that well. One of the reports recently received said that the children were compelled to drink canal water which was badly polluted, and I wrote to that board of health that they ought to stop that. So in regard to the privy vaults that might be used for the school house, they might be found in such a bad sanitary condition that the board of health would have to order new vaults constructed or the old ones cleaned.

Mr. W. H. Blair, Moons P. O.: I taught school for about six or seven years in the country and I wish to say that they are in good sanitary condition as compared with the city school houses. The air is abundant inside and outside and the water is usually taken from a spring close by.

Question: Are the rules and regulations of the board of health law?

Mr. Robinson, Ashtabula: In this pamphlet of laws I think you will find one section which states that they shall have the same force and effect as ordinances.

Question: Are local boards of health permitted to allow persons dying of contagious diseases transported over the country by rail or vehicles without permission from state board? Are persons dying with diphtheria, scarlet fever, yellow fever or smallpox allowed under any consideration to be transported?

Dr. C. S. McCafferty: Rule twelve of the rules and regulations states that "the transportation of bodies of persons dead of smallpox, diphtheria, membranous croup, Asiatic cholera, thyphus fever or yellow fever, except for burial or cremation within the jurisdiction of the health authorities of the municipality or township in which the death has occurred, is absolutely forbiden."

Question: If health boards do not pay for fumigation how can the board compel them to fumigate? (F. M. Wood.)

Dr. Robinson: By not removing the quarantine until they do.

Dr. Unkefer: I would like to ask since the state board has been organized whether diphtheria has been shipped over the state or not?

The Chairman: There have been a few cases of that kind that have been shipped through the state, but when the state board had called the attention of the railroad authorities to it, they have always pleaded ignorance of the case, and have notified us that they would be more careful in the future and that it would not occur again.

Dr. Probst: The question that the doctor presents is one of a good deal of interest, that of the transportation of dead bodies. The Ohio board, as did many of the other state boards in the United States, adopted a rule prohibiting the transportation of dead bodies of persons dying of diphtheria. There are quite a good many states in the Union that didn't adopt that rule. They didn't consider it necessary, and it has caused a good deal of friction. For instance the state board of Massachusetts, one of the best, we all acknowledge, in the United States, permits a corpse to be transported that has died of diphtheria, if it is prepared in a proper manner in a hermetically sealed casket, and we have had a nu nber shipped into Ohio from Massachusetts which has caused a good deal of trouble. The state board at its meeting this week appointed a committee to revise the rules and regulations of the state board of health in regard to the transportation of dead bodies, but whether this rule will be changed or not I cannot say. It is still an open question whether that should be permitted to be done. I think all sanitary authorities are agreed that it would be perfectly safe to ship a body dying of any disease, smallpox, yellow fever, etc., if the body is properly prepared at the place where it starts, and if it is not again exposed at the place where it is to be buried. But the trouble is it is not always properly prepared, and the coffiin may be opened at the final resting place.

Dr. Unkefer, Piqua: Another question that is quite important and that is, that the remains of the corpse may be ever so well fixed and still the people carry the disease. We had a little difficulty about one shipped from Chicago. We would not let it come into Piqua at all. I telegraphed to Chicago and told them not to start with it, that we had all the diphtheria that we could handle and more, and we didn't want to run any risk. I telephoned to Dr. Probst and he said not to let it come in, but in the mean time I received a telegram from Governor Bushnell to allow the corpse to come in, and the query with me was what Governor Bushnell had to do with it, whether he had the right to allow the transportation of dead bodies. It is quite an important thing. And another thing, if we allow one person to carry dead bodies through the state, would it not be right to serve all people alike? It is a matter of a good deal of importance and ought to be settled one way or the other.

Mr. John F. Poorman, Dresden: I have had a good deal of experience, locally; mine is not in shipping to another state. It was a case where a dead body was coming out of another township to bury in our cemetery. They had not quarantined the house and excluded the people from going there, and the people had been visiting the house during the sickness of the patient, and the casket was setting out under the trees and they were going around it and handling it. Word came to me to that effect and I instructed the health officer to go to the outside of the town and forbid the funeral procession going through town. It would have had to go right down through main street to the lower end of

town. I forbade anybody but the parents of that child going, and they to go in a closed carriage. The parents and grandparents and all the relation are enemies of mine to this day for not allowing them to go and see their dear little girl buried.

Question: Should hogs be kept within the incorporated limits of a village?

Dr. McCafferty: That question was not answered whether Governor Bushnell had the right to permit that body to come into the state.

Dr. Merriman: I think he has no more right than I have.

Mr. Blair: We have two hog pens in our town and we should like to get rid of them. I should like to have somebody answer that question. The board of health recommended to the council that they should pass an ordinance to prohibit the keeping of hogs in the limits of that town but they didn't do so but said the board of health had the power to prohibit the keeping of hogs. I believe they are a nuisance in any town.

Dr. L. G. Reed, Kent: In our town we have adopted the Warren resolution, they can keep hogs with the permission of the board of health. Under no other circumstances can they keep them. We just simply adopted the Warren order.

Dr. Merriman: It is a good one.

Dr. Oldham, Cambridge: We have a rule that hog pens shall not be within 200 feet of a dwelling or anywhere where people abide or stay. We have gotten rid of hogs except we have one or two farmers whose farms are in the corporation. Of course we could not prohibit it there. We put it 200 feet, but it might just as well be 500 feet.

Mr. Poorman: We have a good many hog pens in our town, but we have been raising war on the hogs. We do not care how close they have them, they may have them in the cellar if they want them there, but we have a very industrious health officer. He is called the "smeller" in our town, laughter, and they have to keep their places clean. We have a lot of swine but they have to keep their places clean, and if there is anything on earth that is hard to keep clean it is a hog pen.

A Gentleman: The hog question has been a source of a good deal of annoyance to us. We have had an organized board of health since 1871, and I have been associated with that board ever since it has been organized with the exception of two years, and this matter of hog pens came up regularly before our board every year for a number of years in every meeting. Finally I suggested to the board that if the hog pen created a nuisance, that a nuisance according to the rules and regulations of the board of health could be abated, and we authorized the sanitary policeman to keep a close watch over hog pens, and wherever he found one that could be pronounced a nuisance to report the same to t[illegible] owner was at once notified to

abate the nuisance within a certain length of time, and it soon became so expensive to them that at the present time I do not suppose we have a dozen hogs, and they are very careful to keep their pens clean, so that we have gotten about rid of that nuisance through making them keep the pens in a sanitary condition, which was too expensive.

Dr. Unkefer: I do not believe we have that kind of hogs. I never saw any pen that was very clean, so we enacted a law several years ago that no hog pens would be allowed in the city, and there are none today. I think that is the only way to get rid of them.

Mr. B. F. Long, Shelby: I was the one that caused all this discussion on the hog question. I am the one that introduced the question. It seems to me that we have a very clean kind of hogs in Shelby. We have adopted regulations for the keeping of hogs. We have a village with a population of about 4,500, and we have a regulation that hogs shall not be kept within 100 feet of an occupied dwelling. The people say they clean the pens out frequently and yet they are all offensive. In fact I have never seen a hog pen, no matter how clean you keep it, that was not more or less offensive, and we had thought of adopting some regulations in regard to it, and that was the reason I asked this question. I think possibly it would be the best plan to keep them out of the village entirely.

Mr. Webb, Warren: I will read the Warren ordinance.

This ordinance has been tested by the courts and the board of health has been sustained.

Dr. Probst: I would say that Mr. Hunter, of Warren, who was a member of the board of health at the time the hog law was passed, presented a paper before this association some years ago on the hog pen nuisance, in which he gave all the legal decisions sustaining the law. We have that pamphlet in stock at the state board of health office, and anyone who wishes to have a copy of it, if he will drop me a card, will receive it.

Question: A doctor is called to attend a case of diphtheria in a township. He can reach the clerk of the township board of health by a six-mile drive, but sends a letter by mail, dated on the 18th day of the month, which does not reach the clerk until the 22nd. Is this a legal notice?

Mr. Blair: I wish to know how we can get rid of our hog pens Is there a law on the subject? I did not understand what Secretary Probst said.

Dr. Probst: The Warren Board of Health simply adopted an order or regulation, just as you might adopt any other regulation, forbidding the keeping of hogs in the city beyond forty-eight hours.

Mr. Blair: Then, I understand the board of health has the power to abolish hog pens in the city?

Mr. Webb: The circuit court decided in favor of the board.

Dr. McCafferty, Chillicothe: In answer to the last question, section 2118 states that every physician called to attend a person sick with cholera, yellow fever, smallpox, diphtheria, scarlet fever, or any other disease dangerous to the public health, or required by the State Board of Health to be reported, shall, within twelve hours after becoming aware of the nature of the disease, report the same to the board of health within whose jurisdiction such person is found. So two days would not be legal notice.

Dr. Probst: There is no court decision that I know of on this point; yet it seems to me that it is the intention of the act that the board of health shall have knowledge of the case within twelve hours. If a man has smallpox, and the physician were to drop a card in the post-office telling the board of health he had a case of smallpox, and the card, on account of the nature of things, could not reach the board until forty-eight or seventy-two hours afterwards, it would probably be too late for that board to take proper action to prevent the spread of the disease. It was evidently the intention of the legislature that the board should have notice within twelve hours. That is the construction I should place upon it.

Question: What course can a board of health legally pursue to enforce its rules when the city council refuses to confirm the plumbing inspector appointed by the board?

The Chairman: That question was touched upon by the attorney-general.

Dr. W. A. Daugherty, Bucyrus: It seems to me it would be a good thing for the board to take some action in regard to the plumbing law. I like the plan suggested by the gentleman last night, that we recommend to the next legislature that they establish a state board of examiners, and I think we might pass a resolution to that effect. I will say that we were compelled to appoint a board up there, and it cost us $78 for the printing of the proceedings to make them lawful, and the board of health and the council are not satisfied. It is not practical; the board was never organized, and I am in favor of a state board of examiners having charge of this matter.

Question: A township physician, on account of a personal grudge, refuses to answer a call from a township patient. Query: The duty of the local board of health?

Dr. W. N. Unkefer, Piqua: I think the local board hasn't anything to do with it. I think the township trustees should see to that.

Question: What can a board of health do in the case of private sewers that have existed from ten to twenty years and end in an open ditch?

Dr. W[illegible] have a case in our town, where we are [illegible]ave a fertilizer works in the town, [illegible]nto a tile drain, and that

empties into an open ditch, and that open ditch passes through four farms, I think. Prior to last summer this water was used for watering stock, and the refuse has so polluted the stream that the stock refuse to drink the water, and now the fertilizer company is sued for damages. I would like to ask Dr. Probst if that would not come under the state law. There is a state law providing that no stream can be polluted in any way.

Dr. Probst: There is such a law in regard to the pollution of streams. If you can prove the pollution, you can stop the nuisance. The law you perhaps refer to is in regard to sewerage. No town shall be permitted to empty sewage into any stream without having a permit from the State Board of Health. But there is a law in regard to the pollution of streams that your case would certainly come under.

Question: If a board of health condemn such sewers, can the owners continue them a distance in covered tile to a river, so that the nuisance may be stopped, without the consent of the state or local board of health?

The Chairman: I think that can be answered in the negative.

Dr. Probst: They have no right to maintain a nuisance. Of course, a board can abate a nuisance.

Question: How many health officers at a yearly salary of $100, make a personal general inspection of the town or city in which they reside, as to its sanitary conditions? Would like all such to stand up. (L. G. Reed, Kent.)

(Three persons stood up in response.)

Question: The Board of Health of Lorain would ask the following questions: The plumbing inspector, according to the late law, appears to be appointed for life. There is a statute which says that no officer's salary can be raised during his term of office. If we appoint a plumbing inspector at a salary of $25 per month now, and in a couple of years desire to increase to $100 per month, how can we do it?

Dr. McCafferty, Chillicothe: Ask him to resign and reappoint him.

A Gentleman: If he is hired by the month, at the expiration of one month his time expires, unless by precedent they just let it go from month to month, and they would have to rehire him. When we hire a man for one month's service at the expiration of that month his time is out unless he is rehired, and it is just the same way from year to year.

Question: Can a sewerage plant be so arranged as to dispose of garbage also?

Mr. Force: I believe it can. It will, however, take an extra expenditure of money to put the plant in shape for that purpose. It is better to say that the sewage can be disposed of in a garbage plant. That would be nearer the truth. That is the way the sludge, as I suggested in my paper this morning, could be disposed of. A plant can be built for both purposes.

Dr. W. A. Daugherty, Bucyrus: I would like to ask about that plant that has just been completed at Mansfield, and what it would cost a town like Bucyrus if we wanted to put in that system?

Mr. Force: That is a very hard question to answer. I believe the conditions at Bucyrus are rather unfavorable to put in a cheap plant. I have talked with your engineer on the subject. As for the cost of the one at Mansfield that is a hard thing to get at, as the prisoners performed the labor.

Question: Has the question of an open hydraulic owned by a private corporation running through the populous portion of a city, ever been considered? Can the same be condemned as a nuisance and ordered abated when in the opinion of a local board of health the same is dangerous to the public health?

Dr. Probst: As I understand it, the board of health has a right to abate any nuisance within the corporation which is detrimental to health. Possibly in a case of this kind they might have to show to the court that it was detrimental to the health. If they had a good case there is no question but that they could abate it.

Dr. Merriman: It will be necessary for me and perhaps others to leave soon, and I would like to see some action taken in regard to whether the sanitary boards or boards of health should have authority to levy a tax independent of the city council, and to control their own money and manage their own affairs, the same as the school boards. I would move that it is the sense of this meeting that the local boards of health, not only of townships, but villages and cities, should have the power to levy a certain amount of money for their use and for the purpose of carrying out sanitary regulations and reforms, which shall be wholly under their control independent of the council.

The chairman: While this motion is really out of order, yet it will be entertained if there is no objection to it.

Dr. Probst: I sincerely hope that it will prove to be the sense of this meeting that this matter will carry. I find that one of the greatest troubles the boards of health have is the conflict they have with the council in regard to money matters. I see no reason why the board of health should not have its own fund just as the school boards have. And I believe if this association and boards of health were all united in wishing that a law of this kind be passed, we could easily secure it from the next legislature.

Motion prevailed unanimously.

Question: If council refuses to purchase the necessary appliances for testing milk, can the board of health compel them to do so: also weights and measures?

Dr. Potter: I would say, make the purchase, O. K. the bill, send it to the council and let them fight it out there.

Mr. Webb: The board should purchase their own apparatus.

Dr. Merriman: I must say that the council of Warren has been more liberal than the majority of councils. I wish to say that in Niles they oppose everything. I do not know whether the health officer or member of the board of health is here from Niles or not. That is the great trouble in Niles. They don't want to send a man out here to Columbus even.

Question: Can one city stop another from emptying sewage into the Mahoning river where there is a distance of twelve miles between said cities, the sewers being used principally as drains for streets?

Dr. Probst: The laws of the state give the water works trustees authority to prevent the pollution of the water supply within ten miles. The statement here is within twelve miles. It would depend in the first place whether the water supply is polluted. If one city is creating a nuisance detrimental to another city, I think that city would have a right to bring injunction proceedings. That was done in one case I know of where the cities were more than twelve miles apart, and this matter was carried up to the supreme court, and the nuisance had to be abated.

Question: Where a town or city has plans made for a system of sewerage, must said plans be submitted to the state board for their approval?

The Chair: We will ask Mr. Force to answer that question.

Mr. Force: Yes, sir. There can be no question about that. There is an explicit law on that subject. I have in the past two years submitted plans for five or six sewerage systems in this state to the State Board of Health, and I have never thought of calling that in question. There is an explicit law on the subject.

Mr. P. G. Olds, Elyria: There is a notice there from our board of health that I wish you would take up. It is this. A barn is located in an alleyway adjacent to a residence street; there are three houses in close proximity to this barn. We have had considerable trouble with manure and such stuff that has been left there, and it has created considerable odor in that locality. The houses are very close to the barn, the floor of the stable is constructed of hard wood not nailed down, and the floor is very uneven. Some fifteen horses are kept on it and they make so much noise that it is objectionable. Now, what legal rights has this board?

The Chairman: Do we understand the complaint is from the noise?

Mr. Olds: It is from the noise at the present time.

Dr. Probst: If I remember rightly, Mr. Hunter told me that the Warren Board of Health had succeeded in abating a nuisance arising from the barking of a dog, and it could certainly be done in regard to stamping horses.

Mr. Webb: It applies the same to a dog and the same to a fox.

Mr. Olds: Then, Mr. President, that being the case, what can this board do legally? Order them to abate that as a nuisance? Under what head could we operate?

Dr. Probst: I would refer that to Mr. Webb.

Mr. Webb: It came under the head of general or public nuisance.

Dr. Russell: While on the barn theory I would like to know what you do with the offal from the barn. You spoke about two or three houses closely connected with the barn. If they keep the manure in the barns, from the health standpoint I presume it is just as unhealthy to the barn hands as to the people outside. Now, I don't know whether there is any other way of looking at it, unless it is a nuisance.

Dr. Potter: Our old health officer had some forms printed to give notice to abate a nuisance. Now, I think in the case of manure about a barn it would be necessary to get a box large enough to hold the manure for a day or two and haul it away. And about the barn floor, I would write an order to abate that nuisance and at the bottom I would provide the means, and if I didn't do that I would take a mechanic with me and spike the floor down, and give an order, and if it wasn't complied with I would try the law.

Mr. Olds: I do not think that is a good rule. If the board of health dictated means by which they could do this work, and if it failed, they would have to make it good. It is better to instruct them to do this work, and then if they fail you can go after them again.

Dr. Russell: In regard to the legality part of it, if you are sure you are right go ahead, but if you fail in anything you are a gone "gosling." And if you put boxes in the alleys the commissioner will come along and say that those are obstructions and he wants them gotten out. And as far as the boxes are concerned they will overrun. They don't amount to much in my estimation.

Question: Our village has six hundred inhabitants. We are one-half mile from outlet where upper end of drain should terminate. Village is about one-fourth of a mile square. How deep should our drains be and how large should they be?

Mr. Force: How deep should the drain be? Well, for the removal of the sewage five feet would be a sufficient depth.

Question: We have eight feet fall for drain. What are the first steps to take in the matter of sewering a town? We do not wish to connect vaults with drain. What is the manner of assessing the property owners, or how is the assessment divided?

Mr. Force: The question states that they do not wish to connect with the vaults? Then they could make a sort of sub-soil water system of it, and an artificial disposal of the sewage would not be necessary in that case.

In regard to the assessment, there are various methods practiced in this state in assessing for sewerage. One is to construct the sewer and assess the abutting property for the
a large sewer the cost should be l
that particular locality. The

assessed on the general tax duplicate of the corporation. That I think, is about as equitable a system as can be pursued, especially in the case of the main sewer, the corporation pays for the main sewer, the outlet. The abutting property pays for the sewer that directly benefits it in addition to their portion of the cost of the main sewer. Then when other portions of the town are improved and new sewers are opened, a tax per foot front is levied for the cost of the construction of these lateral sewers, and no matter whether the whole system is built at one time or only a portion it makes the cost equal in all cases.

Question: In case a person being exposed to a contagious disease leaves the house before the quarantine is removed, how will an officer proceed with the exposed persons, it being almost impossible to produce evidence without exposing other parties.

Mr. Webb: In Warren we arrest them after the card is removed and the danger is all over.

Question: What is the test to be used for testing milk, the Babcock test, evaporation method or some other?

Dr. McCafferty: We use the Babcock test.

Dr. Potter: I asked that question. We had a discussion in our board of health the other night. I reported the tests of two samples of milk, one was 3 per cent. .125 below the state law. And then the question arose about the test, and it wasn't satisfactory in my mind. I don't know whether I did not make the test right or whether it was not a good test, so I took the train and went down to Cincinnati and called upon Dr. Prendergast, and he called in one of his milk inspectors and sent me over to their chemist, Louis Schmidt on Fourth street, and I asked Mr. Schmidt about using the Babcock test, and he said it won't stand the test and "we use the evaporation test." I think that is the only method of testing milk.

Dr. Probst: The state law prescribes a standard for milk; so many parts of total solids and so many parts of fat. In a prosecution for adulteration of milk it requires a chemical test If you were going to prosecute some one for selling adulterated milk the Babcock tester or lactometer would not prove to the court that this milk had been watered.

Question: What prospect is there of having a complete and efficient organization of the township boards of health under the law? (T. H. Stewart.)

Mr. Stewart: I addressed that question more particularly to the secretary. I am a health officer in Trumbull county. I have seen that a law was passed making the township trustees the board of health. Our township trustees organized and have made a very efficient board of ılth, but our neighboring townships I think have done very little. ıf them have organized and that is about all they have done. And t the secretary's report for 1895 I expected to find something

about what had been done in townships, but out of about 400 pages there were only two pages in the report devoted to township boards of health. Now, of course, municipal boards are of more importance, but still township boards are of importance. There are over 1,300 townships in the state, and in looking over the secretary's report a great many have organized but done little else. Now, I would like to ask if the law is mandatory, compelling the trustees to organize, and what prospect there is of having an efficient organization.

Of course the prevention of disease is the principal object of the boards of health, but one of the objects of the boards of health is this. The state has made the state board of health the custodian of vital statistics, and unless there is a complete organization of the whole state, every township, it would be impossible to get correct statistics. Ohio has never had correct vital statistics, and I do think that every township and municipality through its board of health should report all these cases of contagious disease, causes of death, and births. That is one thing that it has been a great trouble to get reported in the townships, especially the births. These returns would be very valuable if we could get them. And I simply asked that question because I could not find out from the report what had been done in the way of organizing township boards of health.

Dr. Probst: I may say that there has been very good work done indeed in some of the townships, but in quite a good many, I am sorry to say, that not much has been done. It depends largely upon the character of the men that make up the township boards. I think there are about 1,400 townships, and our last report shows that about 1,200 have organized, leaving about 223 that have not yet organized. But we hold that the township trustees are a board whether they organize or not. The law distinctly provides that the trustees of the township shall constitute a board of health for the township, and shall have all the powers and duties of a board of health of any city or village. It says they shall meet annually and elect one of their members president. The matter of statistics is one to which we have paid some attention. While the state board is made the custodian of vital statistics, we shall be unable to do anything in the collection of vital statistics, unless we have a complete change in the laws of the state.

There has been a marked growth in the work of these boards of health in the townships, and they are gradually becoming familiar with their duties, and while the work is slow we are encouraged at the progress that is being made.

Mr. James T. Tibbetts, Niles: I am clerk of the board of health of Weathersfield township, Trumbull county, and I am here for information. I have never made a report for 1896, because I took the office in September, 1896, and when I came to look over the books I could not find a report of a death, birth, or contagious disease in 1896. I have not, as I

say, filed any report, but from this time on I shall do so. I have the deaths and births of the township, and all the contagious diseases since September, 1896, and that is all the report I can make.

Question: How shall township boards of health provide for expenses arising from administration of their duties?

Dr. Probst: The attorney-general gave a decision that township boards of health have a right to pay their expenses out of the general township fund; that it was a duty imposed upon them by the legislature, which they were obliged to carry out, but they could not make a levy for township purposes.

The Chairman: Gentlemen, that ends the questions, and I am quite sure that a session of this kind is of great benefit to the boards of health throughout the state. This brings out questions that are continually perplexing boards of health, and this discussion will solve a great many of the difficult problems that arise. What is the further pleasure of the meeting?

Dr. Daugherty, Bucyrus: I do not think anyone has yet spoken in regard to county organization. Our board has it under contemplation. I think it would be a good thing to have different counties organize.

Dr. McCafferty, Chillicothe: We wish to publish in the "Sanitary Bulletin," which I presume each board of health in Ohio gets, a copy of our constitution and by-laws which we adopted at our organization. I might say that we met on December 16th at Chillicothe in the council chamber, and we had a fair representation from the different boards of health in Ross county. We have 24 boards of health; 16 township, 7 village, and 1 city. We organized by electing a president, three vice-presidents, a secretary, assistant secretary and treasurer. I will be pleased to mail Dr. Probst a copy of the constitution and by-laws, and if he sees fit, he can publish them in the "Sanitary Bulletin," and it would be pretty well distributed, so it may be a means of helping other counties organize such an association.

The Chairman: I would say in regard to the "Sanitary Bulletin," it is going to be made largely an Ohio journal, and all persons who have items of interest and sanitary questions are requested to send them to our secretary. I believe he has made that request before.

And thereupon the convention, on motion, adjourned *sine die*.

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